WEEKLY RESPIRATORY PATHOGENS SURVEILLANCE **REPORT**



SOUTH AFRICA WEEK **24** 2021

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CUMULATIVE DATA FROM

Summary of laboratory

confirmed SARS-CoV-2 cases



HIGHLIGHTS: WEEK 24

- RSV activity remains below seasonal threshold in both influenza-like illness (ILI) and pneumonia surveillance programmes.
- · Four new cases of influenza, two each from Gauteng and KwaZulu-Natal were detected in week 24. To date, 40 influenza cases have been detected from Gauteng, Western Cape, North West, Eastern Cape and KwaZulu-Natal sentinel surveillance sites. The influenza season has not started.
- · From 2 March 2020 to 20 June 2021, a total of 1 497 COVID-19 cases were detected from all surveillance programmes. An increase in detection rate has been noted in the pneumonia surveillance programme reporting week compared to previous week. Whereas, ILI surveillance had a slight decline compared to the previous week. Of the 1086 hospitalised COVID-19 cases reported with available data on outcome, 152 (14%) died.

WEEK 24 2021 REPORTING PERIOD 4 JANUARY 2021 TO 20 JUNE 2021

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 24 2021 REPORTING PERIOD 2 MARCH 2020 TO 20 JUNE 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 40 influenza cases detected in surveillance sites in 2021, the majority (25, 63%) were influenza B/Victoria.

ILI programme: In 2021 to date, specimens from 786 patients meeting ILI case definition were received from 4 ILI sites. Influenza was detected in six (0.8%) patients, of which four (66.7%) were influenza B(Victoria), one (16.7%) influenza B (lineage inconclusive) and one (16.7%) was influenza B (lineage pending results). (Figure 1 and Table 1).

Viral Watch programme: In 2021 to date, specimens were received from 117 patients from Viral Watch sites in four of the 8 provinces participating in surveillance. Influenza was detected in eight (6.8%) patients, of which four (50%) were influenza B (Victoria), three (37.5%) influenza B (lineage inconclusive) and one (12.5%) was influenza B (lineage pending results). (Figure 5 and Table 4).

Pneumonia surveillance: Since the beginning of 2021, specimens from 2 425 patients with severe respiratory illness (SRI) were received from the 6 sentinel sites. Influenza was detected in 17 (0.7%) patients, of which one (6%) was influenza A(H3N2), 11 (65%) influenza B (Victoria) and five (29%) were influenza B (pending lineage results). (Figure 9 and Table 7).

In addition, influenza was detected in nine (2%) specimens, of which six were influenza B (Victoria) and three influenza B (lineage pending results) from 443 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 to date, 786 specimens were tested and RSV was detected in specimens of 62 (8%) patients.

Viral Watch programme: In 2021 to date, 117 specimens were tested and RSV was detected in specimens of six (5%) patients.

Pneumonia surveillance: Since the beginning of 2021, 2 425 specimens were tested and RSV was detected in specimens of 309 (13%) patients.

In addition, RSV was detected in 20 of 443 (5%) 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 2 097 patients were tested and SARS-CoV-2 was detected in 349 (17%) patients.

Viral Watch programme: From March 2020 to date, specimens were tested from 396 patients and SARS-CoV-2 was detected in 57 (14%) patients.

Pneumonia surveillance: From March 2020 to date, specimens from 6 403 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 1 091 (17%) patients.

In addition, SARS-CoV-2 was detected in 91 of 635 (14%) specimens from patients who met suspected SARS-CoV-2 case definition but did not meet the pneumonia/ II I surveillance case definitions.

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

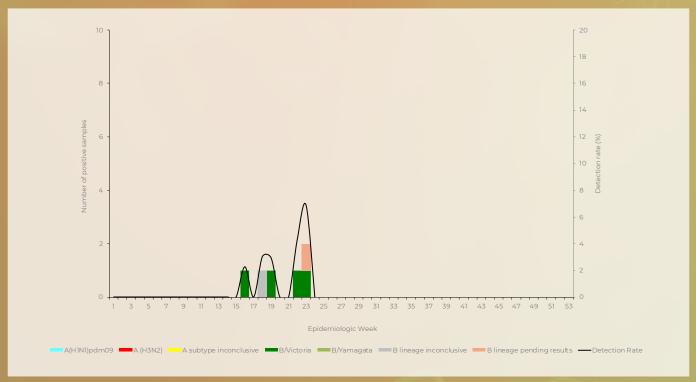


Figure 1. Number of positive samples* by influenza subtype and lineage** and detection rate*** by week

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	0	0	0	0	0	120
Eastridge (WC)	Ο	0	0	0	О	О	0	137
Edendale Gateway (KZ)	0	0	О	2	О			94
Jouberton (NW)	0	0	0	2	0	0	0	344
Mitchell's Plain (WC)	0	0	0	0	0	0	0	91
Total:	0	0	0	4	0	1	1	786

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

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^{**}Influenza was detected from eight of 362 (2.2%), of which five were influenza B(Victoria) and three influenza B(lineage pending results) 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.
***influenza B lineage results are pending

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

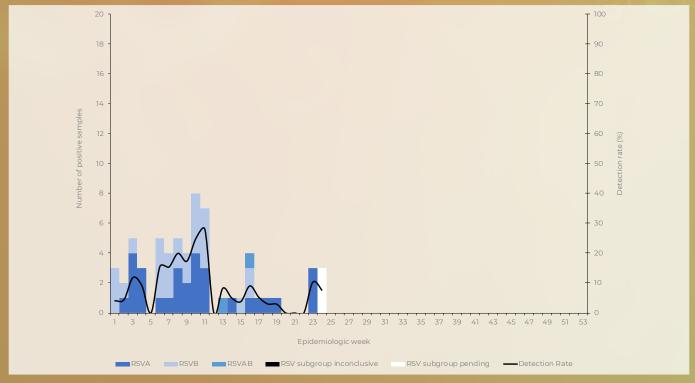


Figure 2. Number of samples testing positive for respiratory syncytial virus** by subgroup and detection rate by week

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	120
Eastridge (WC)	14	0		0		137
Edendale Gateway (KZ)		5	0	0		94
Jouberton (NW)	2	15	0	0		344
Mitchell's Plain (WC)	2	0	0	0	0	91
Total	30	27	2	0	3	786

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 from 15 of 362 (4%) 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.

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

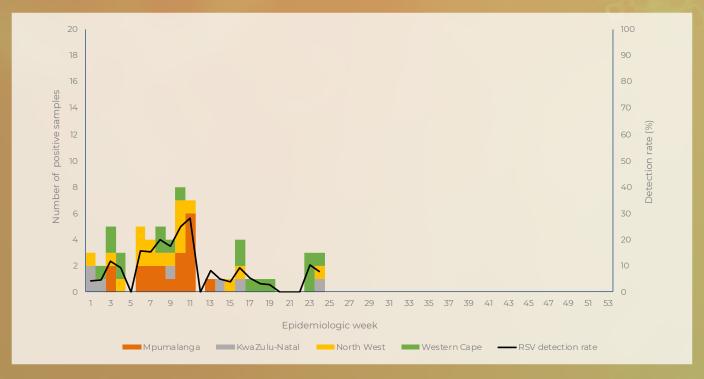


Figure 3. Number of samples testing positive for respiratory syncytial virus* by province and detection rate by week

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

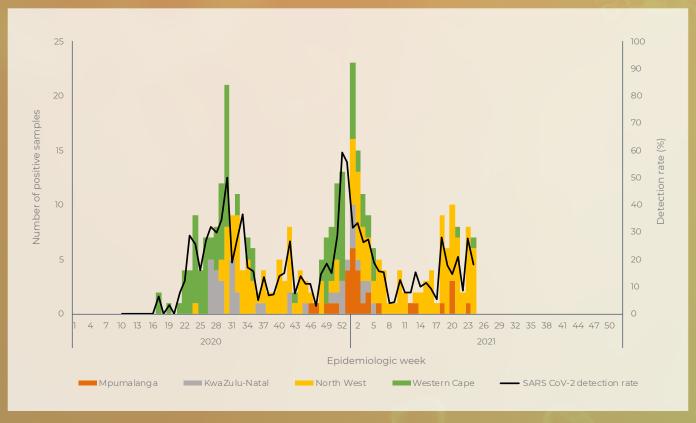


Figure 4. Number of samples testing positive for SARS-CoV-2*s by province and detection rate by week

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)	30	150
Eastridge (WC)	47	625
Edendale Gateway (KZ)	39	235
Jouberton (NW)	166	667
Mitchell's Plain (WC)	67	420
Total:	349	2 097

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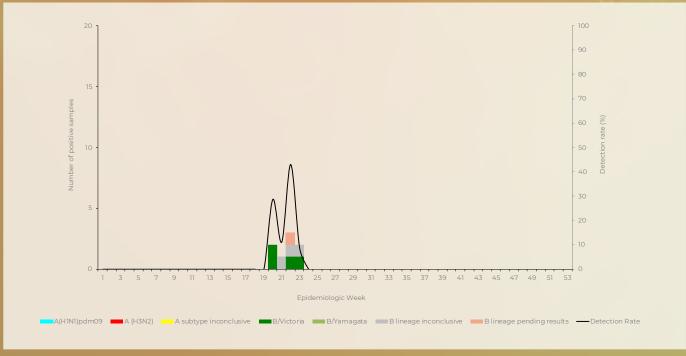


Figure 5. Number of positive samples* by influenza subtype and lineage and detection rate** by week

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	0	О	0	О	0	0
Gauteng	0	0	0	3	0	3		101
Limpopo	0	0	0	О	0	О	O	0
Mpumalanga	0	0	0	О	0	О	0	
North West	0	0	0	О	0	О	О	2
Northern Cape	0	0	0	О	0	О	О	0
Western Cape	0	0	0	О	0	0	0	12
Total:	0	0	0	4	0	3	1	117

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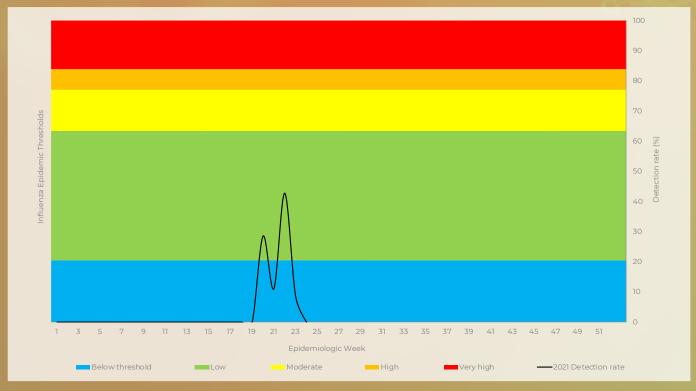


Figure 6. ILI surveillance (Viral Watch) percentage influenza detections and epidemic thresholds*

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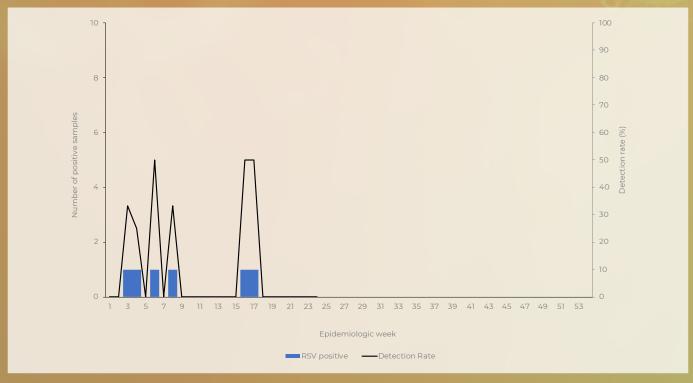


Figure 7. Number of samples testing positive for RSV*, and detection rate by week

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	101
Limpopo	0	0
Mpumalanga	0	
North West	0	2
Northern Cape	0	0
Western Cape	2	12
Total:	6	117

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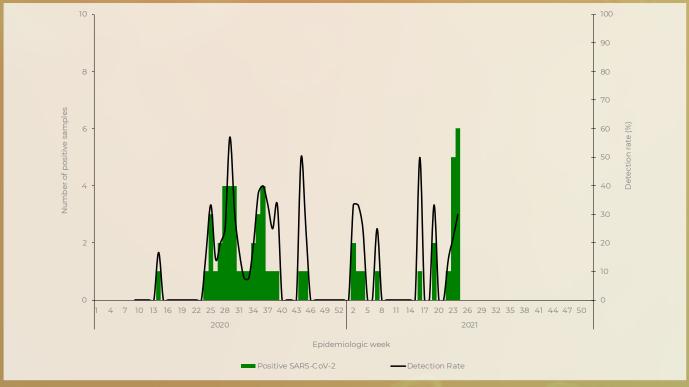


Figure 8. Number of samples testing positive for SARS-CoV-2*, and detection rate by week

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	44	261
Limpopo	0	2
Mpumalanga		6
North West	0	2
Northern Cape	0	2
Western Cape	10	104
Total:	57	396

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

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

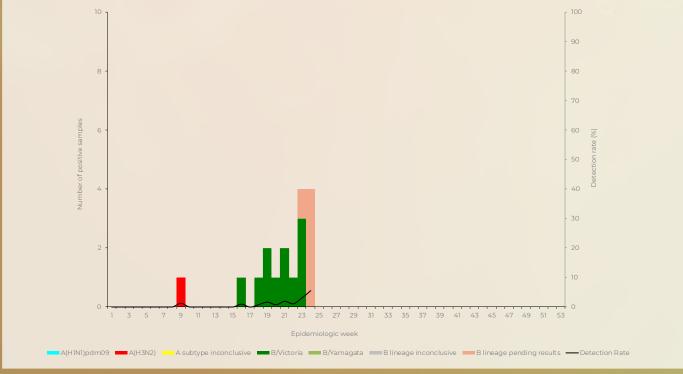


Figure 9. Number of positive samples* by influenza subtype and lineage** and detection rate*** by week

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	4	0	0	2	328
Helen Joseph-Rahima Moosa (GP)	0	0	О	6	0	0	2	673
Klerksdorp-Tshepong (NW)	0	0	Ο		0	0		378
Mapulaneng- Matikwana (MP)	0	0	О	0	0	0	0	304
Red Cross (WC)	0	О	О	0	0	0	0	361
Mitchell's Plain (WC)	0		0	0	0	0	0	288
Tintswalo (MP)	0	О	0	О	0	0	0	93
Total:	0	1	0	- 11	0	0	5	2 425

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 81 (1.3%) 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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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

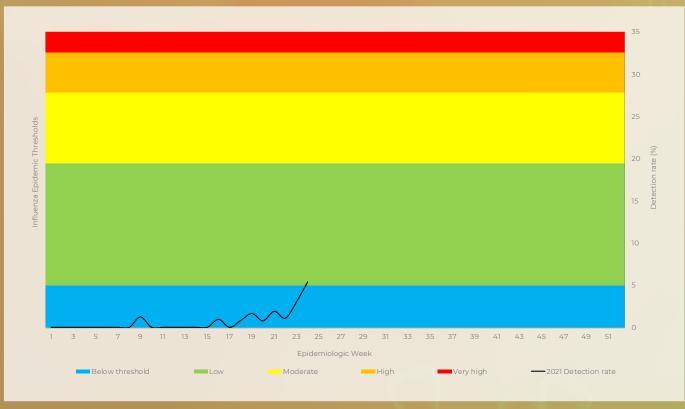


Figure 10. National syndromic surveillance for pneumonia percentage influenza detections and epidemic thresholds*

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

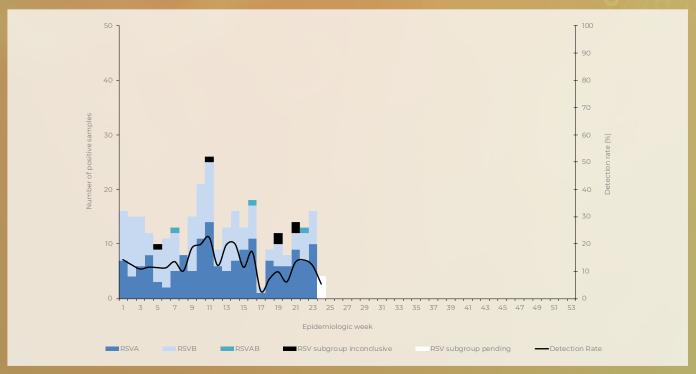


Figure 11. Number of samples testing positive for respiratory syncytial virus* by subgroup and detection rate by week

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	25	0	0	0	328
Helen Joseph-Rahima Moosa (GP)	34	41	О	0	0	673
Klerksdorp-Tshepong (NW)	8	41	0	2	О	378
Mapulaneng-Matikwana (MP)	20	7		0	0	304
Red Cross (WC)	57	18		3	2	361
Mitchell's Plain (WC)	23	4			2	288
Tintswalo (MP)	10	3	0	0	0	93
Total:	157	139	3	6	4	2 425

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 81 (6.4%) 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

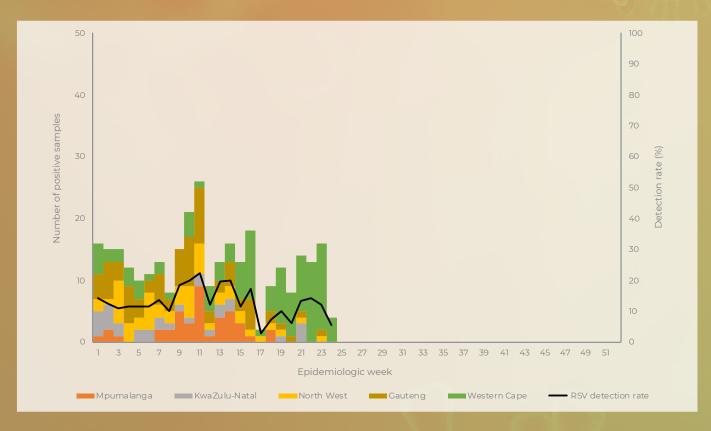


Figure 12. Number of samples testing positive for respiratory syncytial virus* by province and detection rate by week

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

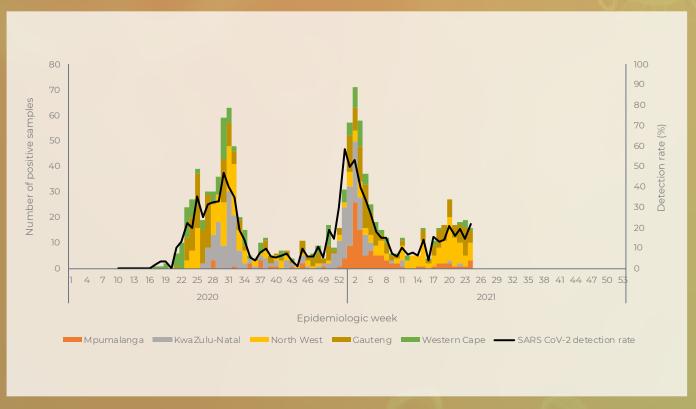


Figure 13. Number oof samples testing positive for SARS-CoV-2* by province and detection rate by week

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)	242	1 149
Helen Joseph-Rahima Moosa (GP)	292	1 512
Klerksdorp-Tshepong (NW)	274	971
Mapulaneng-Matikwana (MP)	101	606
Red Cross (WC)	43	1 317
Mitchell's Plain (WC)	125	755
Tintswalo (MP)	14	93
Total:	1 091	6 403

^{**}SARS-CoV-2 was detected in 21 of 143 (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=349 (%)	Pneumonia, n=1 091 (%)
Age group		
0-9	35/349 (10)	72/1091 (7)
10-19	25/349 (7)	7/1091 (1)
20-39	146/349 (42)	184/1091 (17)
40-59	111/349 (32)	401/1091 (37)
60-79	30/349 (8)	391/1091 (35)
≥80	2/349 (1)	36/1091 (3)
Sex-female	203/349 (58)	669/1091 (61)
Province*		
Gauteng	N/A	292/1091 (27)
KwaZulu-Natal	39/349 (11)	242/1091 (22)
Mpumalanga**	30/349 (9)	115/1091 (11)
North West	166/349 (47)	274/1091 (25)
Western Cape	114/349 (33)	168/1091 (15)
Race		
Black	246/349 (70)	910/1086 (84)
Coloured	94/349 (27)	122/1086 (11)
Asian/Indian	1/349 (<1)	32/1086 (3)
Other	8/349 (2)	22/1086 (2)
Presentation		
Fever	338/349 (97)	580/1086 (53)
Cough	346/349 (99)	1048/1086 (97)
Shortness of breath	115/349 (33)	864/1086 (80)
Chest pain	147/349 (42)	454/1086 (42)
Diarrhoea	34/349 (10)	69/1086 (6)

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Characteristic	Influenza–like illness (ILI), public-sector, n=349 (%)	Pneumonia, n=1 091 (%)
Underlying conditions		
Hypertension	12/349 (3)	124/1086 (11)
Cardiac	0/349 (0)	8/1086 (1)
Lung disease	0/349 (0)	1/1086 (<1)
Diabetes	7/349 (2)	227/1086 (21)
Cancer	0/349 (0)	7/1086 (1)
Tuberculosis	2/349 (1)	29/1086 (3)
HIV-infection	51/349 (15)	221/1086 (20)
Other ***	9/349 (3)	84/1086 (8)
Management		
Oxygen therapy	2/349 (1)	786/1086 (72)
ICU admission	N/A	29/1086 (3)
Ventilation	N/A	33/1086 (3)
Outcome***		
Died	0/349 (0)	152/1086 (14)

