### **WEEKLY RESPIRATORY** PATHOGENS SURVEILLANCE **REPORT**



SOUTH AFRICA WEEK **34** 2021

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### **CUMULATIVE DATA FROM**



Summary of laboratory

confirmed SARS-CoV-2 cases

2021

### HIGHLIGHTS: WEEK 34

- · RSV activity remains below seasonal threshold in both influenza-like illness (ILI) and pneumonia surveillance programmes.
- · Seven new cases of influenza from North West (n=1), Gauteng (n=4) and Western Cape (n=2) surveillance sites were detected in week34. To date, 77 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 29 August 2021, a total of 2 679 COVID-19 cases were detected from all surveillance programmes. A decline in detection rate has been noted in pneumonia surveillance programme in week34, whereas ILI programme had a slight increase. Of the 1 706 hospitalised COVID-19 cases reported with available data on outcome, 288 (16%) died.

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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	<b>ILI:</b> 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 SARS-CoV-2	Suspected SARS-CoV-2	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 <sup>β</sup>	Any person presenting with an acute (≤14 days) respiratory tract infection or other clinical illness compatible with COVID-19 <sup>β</sup>	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)

<sup>\*</sup> 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

<sup>\*\*\*</sup>Started in November 2020

<sup>\*\*\*\*</sup>INF: influenza virus; RSV: respiratory syncytial virus; BP: Bordetella pertussis; SARS-CoV-2: severe acute respiratory syndrome coronavirus 2

WEEK 34 2021 REPORTING PERIOD 2 MARCH 2020 TO 29 AUGUST 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 77 influenza cases detected in surveillance sites in 2021, the majority (n=66, 86%) were influenza B/Victoria.

ILI programme: In 2021 to date, specimens from 1 217 patients meeting ILI case definition were received from 4 ILI sites. Influenza was detected in 10 (1%) patients, of which eight (80%) were influenza B(Victoria) and two (20%) were influenza B (lineage inconclusive). (Figure 1 and Table 1).

Viral Watch programme: In 2021 to date, specimens were received from 166 patients from Viral Watch sites in 5 of the 8 provinces participating in surveillance. Influenza was detected in nine (5%) patients, of which five (56%) were influenza B (Victoria), and four (44%) influenza B (lineage inconclusive) (Figure 5 and Table 4).

Pneumonia surveillance: Since the beginning of 2021, specimens from 4 118 patients with severe respiratory illness (SRI) were received from the 6 sentinel sites. Influenza was detected in 43 (1%) patients, of which four (9%) were influenza A(H3N2), 38 (88%) influenza B (Victoria) and one (2%) was influenza B (lineage inconclusive). (Figure 9 and Table 7).

In addition, influenza B (Victoria) was detected in 15 of 675 (2%) from 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 detection has been reported from all surveillance programmes, activity remains below seasonal threshold.

ILI programme: In 2021 to date, 1 217 specimens were tested and RSV was detected in specimens of 73 (6%) patients.

Viral Watch programme: In 2021 to date, 166 specimens were tested and RSV was detected in specimens of six (4%) patients.

Pneumonia surveillance: Since the beginning of 2021, 4 118 specimens were tested and RSV was detected in specimens of 391 (9%) patients.

In addition, RSV was detected in 21 of 675 (3%) 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 2 528 patients were tested and SARS-CoV-2 was detected in 526 (21%) patients.

Viral Watch programme: From March 2020 to date, specimens were tested from 445 patients and SARS-CoV-2 was detected in 83 (19%) patients.

Pneumonia surveillance: From March 2020 to date, specimens from 8 133 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 1891 (23%) patients.

In addition, SARS-CoV-2 was detected in 179 of 878 (20%) 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

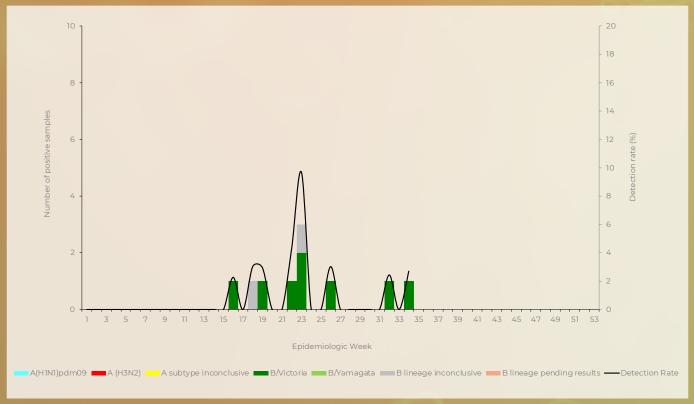


Figure 1. Number of positive samples\* by influenza subtype and lineage\*\* and detection rate\*\*\* by week

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	0	0	0	0	0	171
Eastridge (WC)	0	0	0	0	О	О	0	182
Edendale Gateway (KZ)	0	0	О	3	О	2	0	146
Jouberton (NW)	0	0	О	5	О	О	0	593
Mitchell's Plain (WC)	0	0	О	0	О	О	0	125
Total:	0	0	0	8	0	2	0	1 217

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

<sup>\*\*</sup>Influenza was detected from 11 of 530 (2%), all were influenza B(Victoria), 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

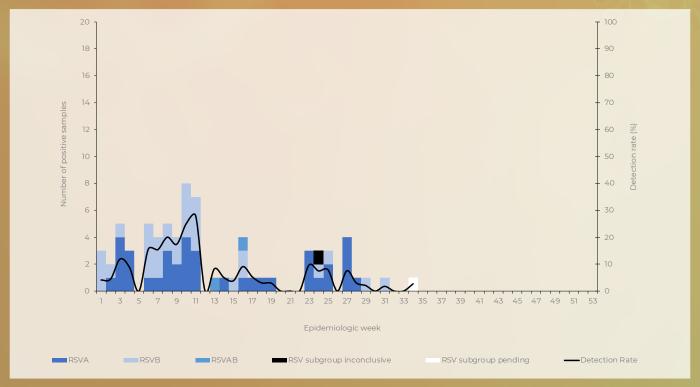


Figure 2. Number of samples testing positive for respiratory syncytial virus\*\* by subgroup and detection rate by week

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	171
Eastridge (WC)	22			0		182
Edendale Gateway (KZ)		6	0	0	0	146
Jouberton (NW)	2	17	0		0	593
Mitchell's Plain (WC)	2	0	0	0	0	125
Total	38	31	2	1	1	1 217

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 530 (3%) 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

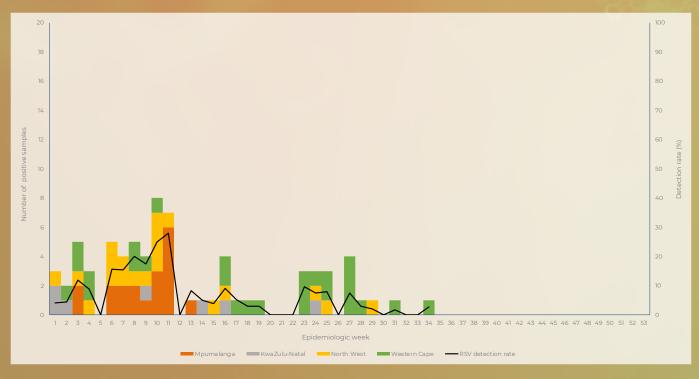


Figure 3. Number of samples testing positive for respiratory syncytial virus\* by province and detection rate by week

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

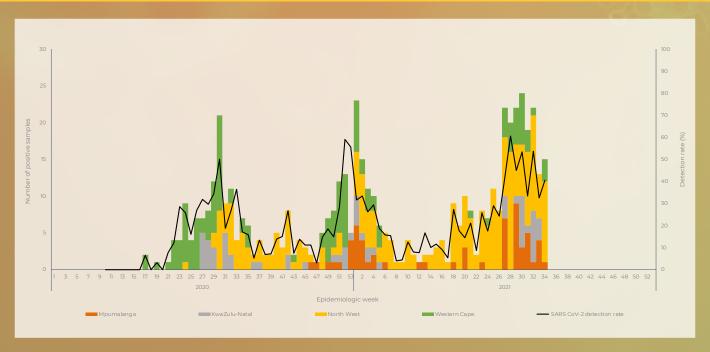


Figure 4. Number of samples testing positive for SARS-CoV-2\*s by province and detection rate by week

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)	60	201
Eastridge (WC)	57	671
Edendale Gateway (KZ)	61	289
Jouberton (NW)	264	913
Mitchell's Plain (WC)	84	454
Total:	526	2 528

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

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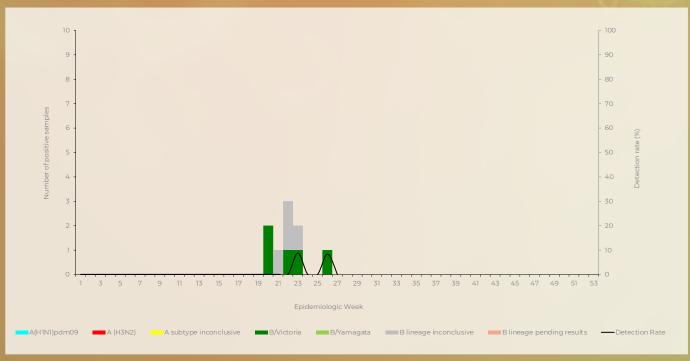


Figure 5. Number of positive samples\* by influenza subtype and lineage and detection rate\*\* by week

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	О	О	0	0	0	0
Gauteng	0	0	О	4	0	4	О	139
Limpopo	0	0	О	О	0	О	O	0
Mpumalanga	0	0	0	О	0	0	0	2
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	0	22
Total:	0	0	0	5	0	4	0	166

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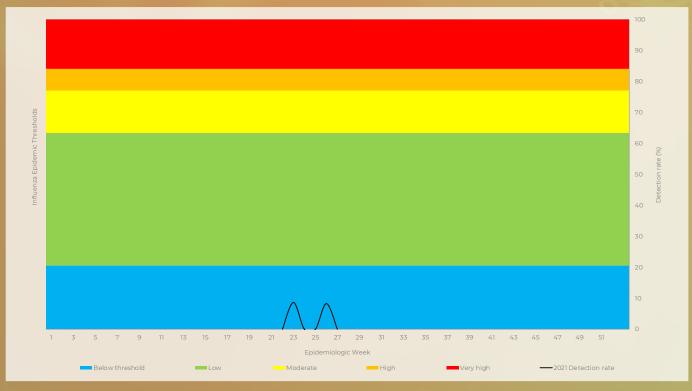


Figure 6. ILI surveillance (Viral Watch) percentage influenza detections and epidemic thresholds\*

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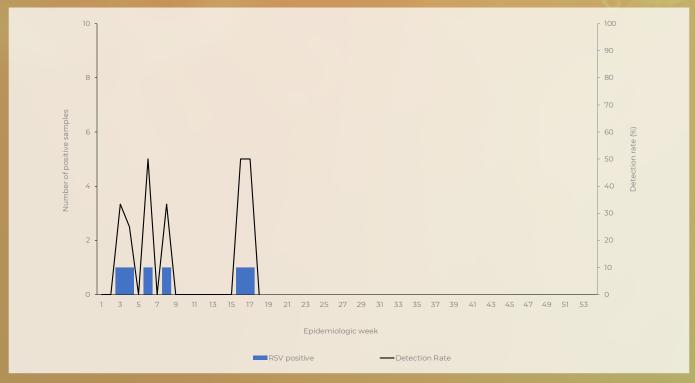


Figure 7. Number of samples testing positive for RSV\*, and detection rate by week

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	1
Free State	0	0
Gauteng	4	139
Limpopo	0	0
Mpumalanga	0	2
North West	0	2
Northern Cape	0	0
Western Cape	2	22
Total:	6	166

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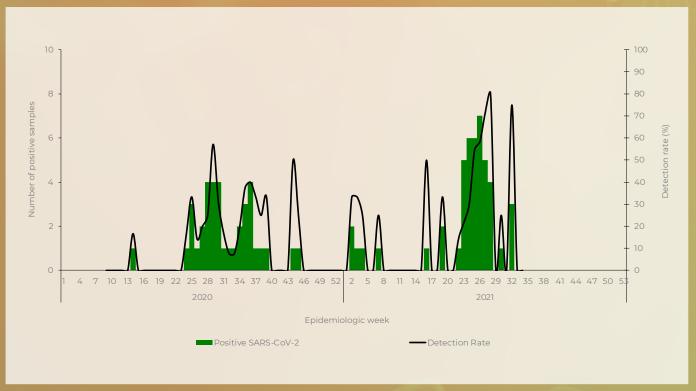


Figure 8. Number of samples testing positive for SARS-CoV-2\*, and detection rate by week

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	65	299
Limpopo	0	2
Mpumalanga		7
North West	0	2
Northern Cape	0	2
Western Cape	15	114
Total:	83	445

<sup>\*</sup>Specimens from patients with Influenza-like illnesses at 92 sentinel sites in 8 provinces

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#### NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

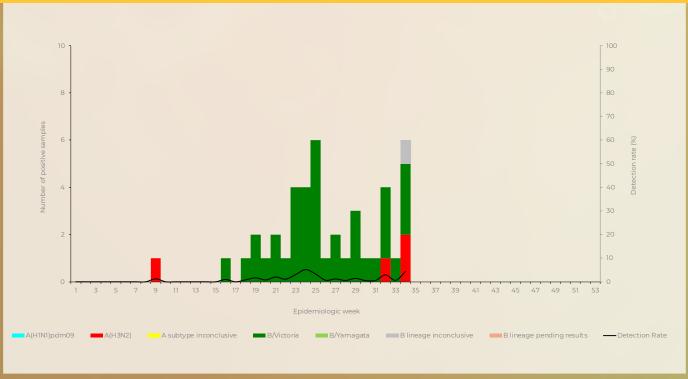


Figure 9. Number of positive samples\* by influenza subtype and lineage\*\* and detection rate\*\*\* by week

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	8	0	0	0	629
Helen Joseph-Rahima Moosa (GP)	0	3	О	15	0		0	1068
Klerksdorp-Tshepong (NW)	0	0	О	4	0	0	0	680
Mapulaneng- Matikwana (MP)	0	0	О		0	0	0	411
Red Cross (WC)	0	0	0	9	0	0	0	535
Mitchell's Plain (WC)	0		0	О	0	0	0	626
Tintswalo (MP)	0	О	0	1	0	0	0	169
Total:	0	4	0	38	0	11	0	4 118

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 in four (3%) of 145 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

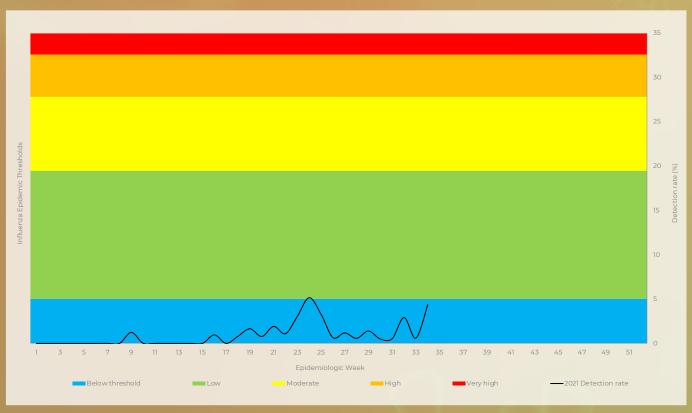


Figure 10. National syndromic surveillance for pneumonia percentage influenza detections and epidemic thresholds\*

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#### NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

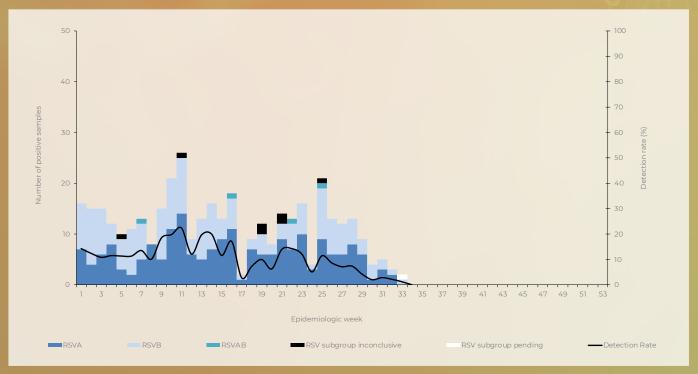


Figure 11. Number of samples testing positive for respiratory syncytial virus\* by subgroup and detection rate by week

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	29	0	0	0	629
Helen Joseph-Rahima Moosa (GP)	37	42	О	0	0	1068
Klerksdorp-Tshepong (NW)	8	44	0	2	0	680
Mapulaneng-Matikwana (MP)	20	7		0	0	411
Red Cross (WC)	84	43	2	4		535
Mitchell's Plain (WC)	37	10			0	626
Tintswalo (MP)	10	3	0	0	0	169
Total:	201	178	4	7	1 1	4 118

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 six of 145 (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

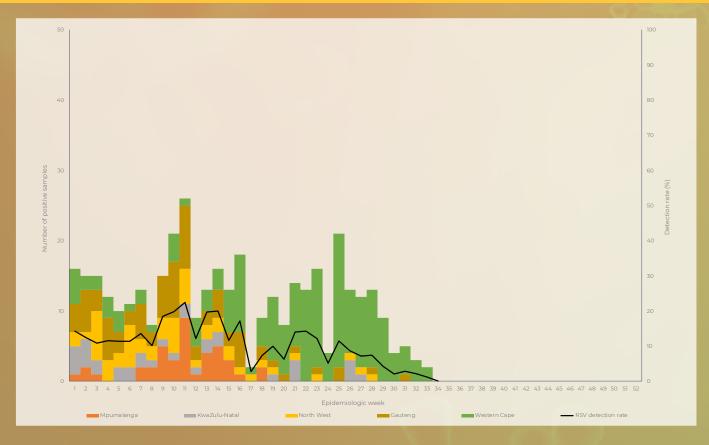


Figure 12. Number of samples testing positive for respiratory syncytial virus\* by province and detection rate by week

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#### NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

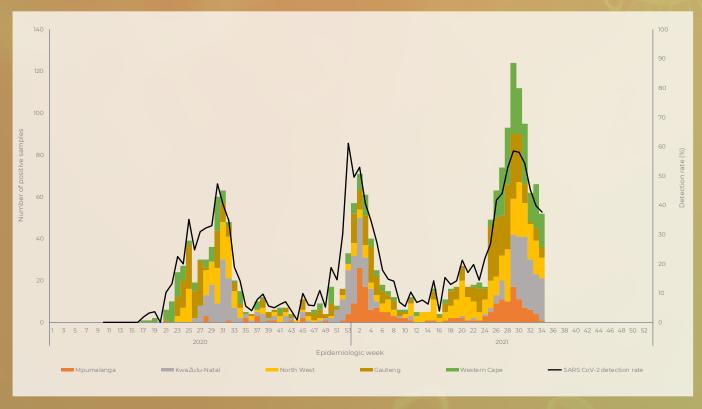


Figure 13. Number oof samples testing positive for SARS-CoV-2\* by province and detection rate by week

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)	414	1 478
Helen Joseph-Rahima Moosa (GP)	472	1 914
Klerksdorp-Tshepong (NW)	436	1 272
Mapulaneng-Matikwana (MP)	153	713
Red Cross (WC)	56	1 492
Mitchell's Plain (WC)	314	1 096
Tintswalo (MP)	46	168
Total:	1 891	8 133

\*\*SARS-CoV-2 was detected in 36 of 216 (17%) 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 pneumonia surveillance programmes, South Africa, 02 March 2020 – 29 August 2021

Characteristic	Influenza-like illness (ILI), public-sector, n=669 (%)	Pneumonia, n=1 927 (%)
Age group		
0-9	51/669 (7)	124/1927 (6)
10-19	47/669 (7)	12/1927 (1)
20-39	312/669 (47)	344/1927 (18)
40-59	209/669 (31)	723/1927 (37)
60-79	48/669 (7)	653/1927 (34)
≥80	2/669 (<1)	71/1927 (4)
Sex-female	409/669 (61)	1177/1927 (61)
Province*		
Gauteng	N/A	473/1927 (24)
KwaZulu-Natal	102/669 (15)	419/1927 (22)
Mpumalanga**	84/669 (13)	229/1927 (12)
North West	338/669 (50)	436/1927 (23)
Western Cape	145/669 (22)	370/1927 (19)
Race		
Black	502/666 (75)	1503/1904 (79)
Coloured	133/666 (20)	298/1904 (16)
Asian/Indian	4/666 (1)	47/1904 (2)
White	21/666 (3)	38/1904 (2)
Other	6/666 (1)	18/1904 (1)
Presentation		
Fever	523/666 (79)	891/1904 (47)
Cough	648/666 (97)	1827/1904 (96)
Shortness of breath	238/666 (36)	1494/1904 (78)
Chest pain	286/666 (43)	763/1904 (40)
Diarrhoea	49/666 (7)	116/1904 (6)

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Characteristic	Influenza-like illness (ILI), public-sector, n=669 (%)	Pneumonia, n=1 927 (%)
Underlying conditions		
Hypertension <sup>\$</sup>	17/527 (3)	248/1619 (15)
Cardiac	2/666 (<1)	45/1904 (2)
Lung disease	o/666 (o)	2/1904 (<1)
Diabetes	15/666 (2)	387/1904 (20)
Cancer	1/666 (<1)	11/1904 (1)
Tuberculosis	10/666 (2)	44/1904 (2)
HIV-infection	124/666 (19)	405/1904 (21)
Other ***	12/666 (2)	90/1904 (5)
Management		
Oxygen therapy	9/666 (1)	1398/1904 (73)
ICU admission	N/A	40/1904 (2)
Ventilation	N/A	49/1904 (3)
Outcome***		
Died	0/623 (0)	288/1706 (17)

