WEEKLY RESPIRATORY PATHOGENS SURVEILLANCE REPORT



SOUTH AFRICA WEEK 19 2021

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CUMULATIVE DATA FROM

confirmed SARS-CoV-2 cases



HIGHLIGHTS: WEEK 19

- · RSV activity continues in provinces but 2021 RSV season has not started yet.
- · Three new cases of influenza B from Gauteng (two) and North West (one) were detected in this current reporting week (week19) in addition to eight cases reported in the previous weeks. To date, influenza cases have been detected from Gauteng, Western Cape, North West and KwaZulu-Natal sentinel surveillance sites. Influenza season has not started.
- · From 2 March 2020 to 16 May 2021, a total of 1 304 COVID-19 cases were detected from all surveillance programmes. A decrease in number of new cases detected in the current reporting week has been noted in both influenza-like illness (ILI) and in pneumonia surveillance programme compared to previous week (week18). The decrease in number of cases in current week may be due to delays in reporting. Of the 941 hospitalised COVID-19 cases reported with available data on outcome, 135 (14%) died.

WEEK 19 2021 REPORTING PERIOD 4 JANUARY 2021 TO 16 MAY 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 19 2021 REPORTING PERIOD 2 MARCH 2020 TO 16 MAY 2021

COMMENTS

Influenza

The influenza 2021 season has not started. The first influenza positive case of 2021 was detected in pneumonia surveillance in week 9 of 2021 (week ending on the 07 March 2021).

ILI programme: In 2021 to date, specimens from 588 patients meeting ILI case definition were received from 4 ILI sites. Influenza was detected in three patients, of which one (33%) was influenza B (Victoria) and two (67%) influenza B (lineage pending results). (Figure 1 and Table 1).

Viral Watch programme: During the same period, specimens were received from 48 patients from Viral Watch sites in three of the 8 provinces participating in surveillance. Influenza was not detected. (Figure 5 and Table 4).

Pneumonia surveillance: Since the beginning of 2021, specimens from 1880 patients with severe respiratory illness (SRI) were received from the 6 sentinel sites. Influenza was detected in five patients, of which one (20%) was influenza A(H3N2), two (40%) influenza B (Victoria) and two (40%) influenza B (lineage pending results). (Figure 9 and Table 7).

In addition, influenza B (Victoria) was detected in three of 332 (1%) specimens 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 transmission has been reported from all surveillance programmes, activity remains below seasonal threshold.

ILI programme: In 2021 to date, 588 specimens were tested and RSV was detected in specimens of 56 (10%) patients.

Viral Watch programme: During the same period, 48 specimens were tested and RSV was detected in specimens of five (10%) patients.

Pneumonia surveillance: Since the beginning of 2021, 1880 specimens were tested and RSV was detected in specimens of 249 (13%) patients.

In addition, RSV was detected in 17 of 332 (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 (week starting 2 March 2020).

ILI programme: From March 2020 to date, specimens from 1 898 patients were tested and SARS-CoV-2 was detected in 314 (17%) patients.

Viral Watch programme: From March 2020 to date, specimens were tested from 327 patients and SARS-CoV-2 was detected in 45 (14%) patients.

Pneumonia surveillance: From March 2020 to date. specimens from 5 736 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 945 (17%) patients.

In addition, SARS-CoV-2 was detected in 74 of 524 (14%) 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

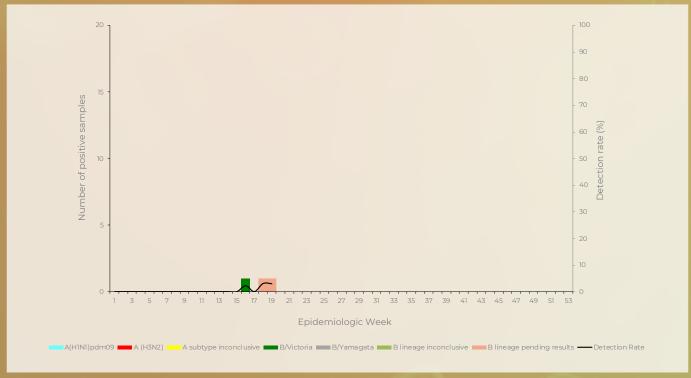


Figure 1. Number of positive samples* by influenza subtype and lineage** and detection rate*** by week

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	89
Eastridge (WC)	0	0	0	О	0	0	0	106
Edendale Gateway (KZ)	0	0	0		0	0		84
Jouberton (NW)	0	0	0	О	0	0		238
Mitchell's Plain (WC)	0	0	0	О	0	0	0	71
Total:	0	0	0	1	0	0	2	588

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. This is not included in the table
***influenza B lineage results are pending

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

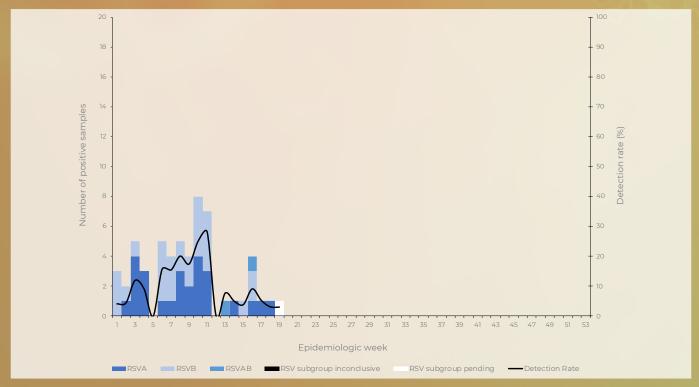


Figure 2. Number of samples testing positive for respiratory syncytial virus** by subgroup and detection rate by week

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	89
Eastridge (WC)	10	0		0		106
Edendale Gateway (KZ)		5	0	0	0	84
Jouberton (NW)	2	15	0	0	0	238
Mitchell's Plain (WC)	2	0	0	0	0	71
Total	26	27	2	0	1	588

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 12 of 259 (5%) 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

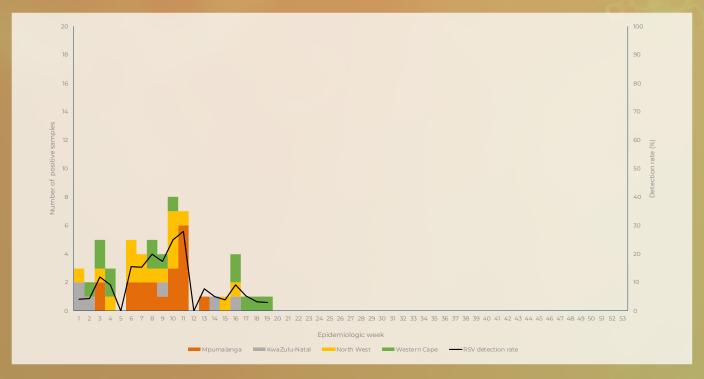


Figure 3. Number of samples testing positive for respiratory syncytial virus* by province and detection rate by week

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

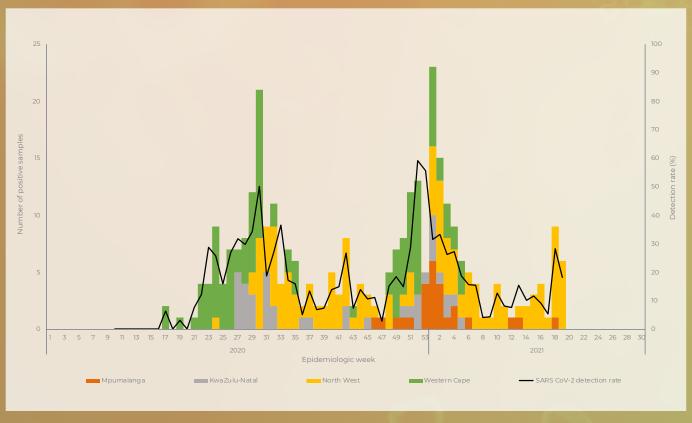


Figure 4. Number of samples testing positive for SARS-CoV-2*\$ by province and detection rate by week

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)	26	119
Eastridge (WC)	47	595
Edendale Gateway (KZ)	39	225
Jouberton (NW)	137	560
Mitchell's Plain (WC)	65	399
Total:	314	1898

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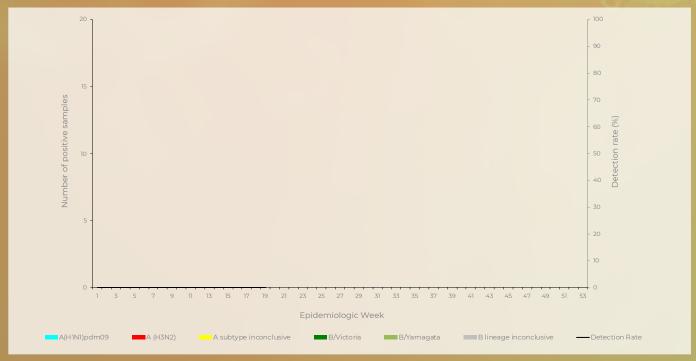


Figure 5. Number of positive samples* by influenza subtype and lineage and detection rate** by week

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	Total samples
Eastern Cape	0	0	0	0	0	0	0
Free State	0	0	О	0	0	0	0
Gauteng	0	0	О	0	0	0	42
Limpopo	0	0	О	О	0	0	0
Mpumalanga	0	0	О	О	0	0	
North West	0	0	О	О	0	0	0
Northern Cape	0	0	О	0	0	0	0
Western Cape	0	О	О	0	0	0	5
Total:	0	0	0	0	0	0	48

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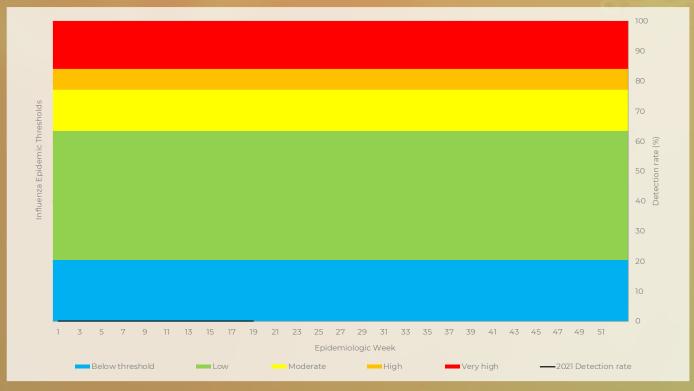


Figure 6. ILI surveillance (Viral Watch) percentage influenza detections and epidemic thresholds*

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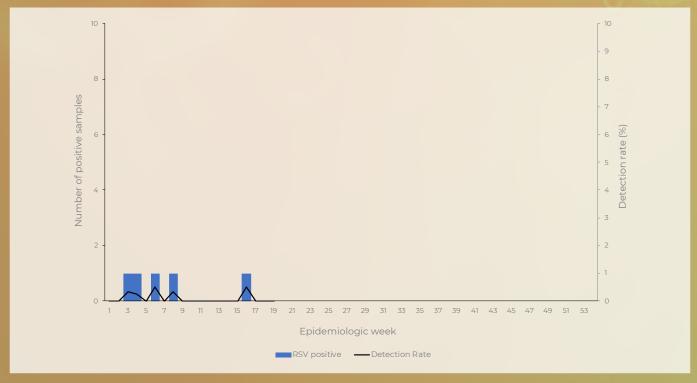


Figure 7. Number of samples testing positive for RSV*, and detection rate by week

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	0
Free State	0	0
Gauteng	4	42
Limpopo	0	0
Mpumalanga	0	
North West	0	0
Northern Cape	0	0
Western Cape	1 1000	5
Total:	5	48

WEEK 19 2021

REPORTING PERIOD 2 MARCH 2020 TO 16 MAY 2021

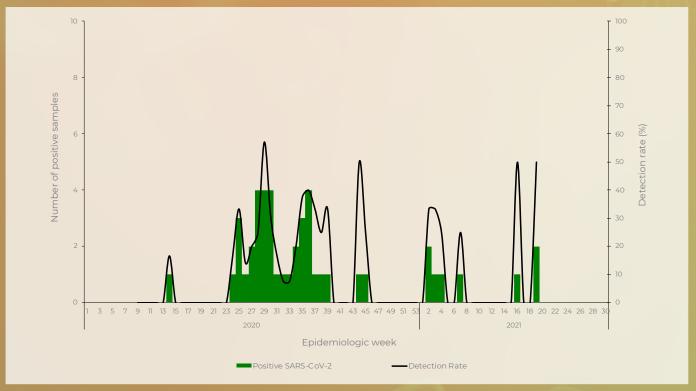


Figure 8. Number of samples testing positive for SARS-CoV-2*, and detection rate by week

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		4
Free State		14
Gauteng	32	202
Limpopo	O	2
Mpumalanga		6
North West	0	0
Northern Cape	0	2
Western Cape	10	97
Total:	45	327

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

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

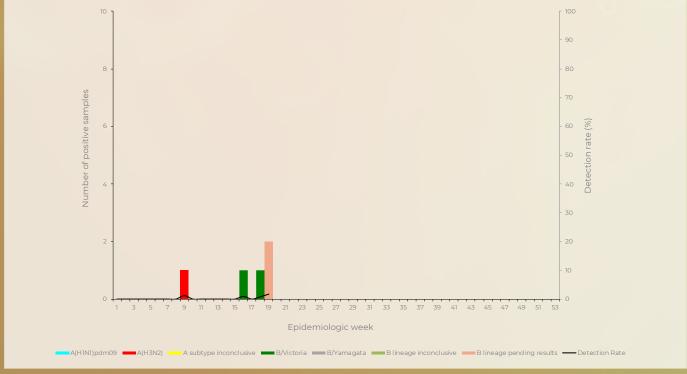


Figure 9. Number of positive samples* by influenza subtype and lineage** and detection rate*** by week

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		0	0	0	255
Helen Joseph-Rahima Moosa (GP)	0	Ο	О		0	О	2	546
Klerksdorp-Tshepong (NW)	0	0	О	0	0	О	0	279
Mapulaneng-Matikwana (MP)	0	О	О	0	0	Ο	0	252
Red Cross (WC)	0	О	0	0	0	0	0	272
Mitchell's Plain (WC)	0		0	0	0	0	0	206
Tintswalo (MP)	0	О	0	О	0	0	0	70
Total:	0	1	0	2	0	0	2	1 880

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 73 (1.4%) 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.
***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

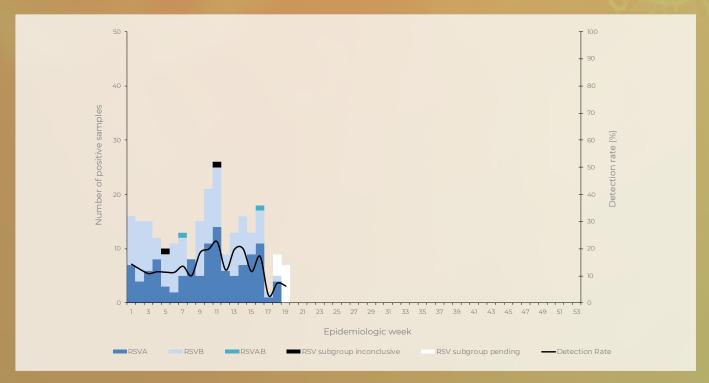


Figure 11. Number of samples testing positive for respiratory syncytial virus* by subgroup and detection rate by week

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)	4	22	0	0	0	255
Helen Joseph-Rahima Moosa (GP)	31	39	0	0	2	546
Klerksdorp-Tshepong (NW)	8	38	0	2		279
Mapulaneng-Matikwana (MP)	19	6		0	2	252
Red Cross (WC)	34	7	0	0	5	272
Mitchell's Plain (WC)	10	3		0		206
Tintswalo (MP)	10	3	0	0	0	70
Total:	116	118	2	2	n	1 880

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 73 (7%) 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

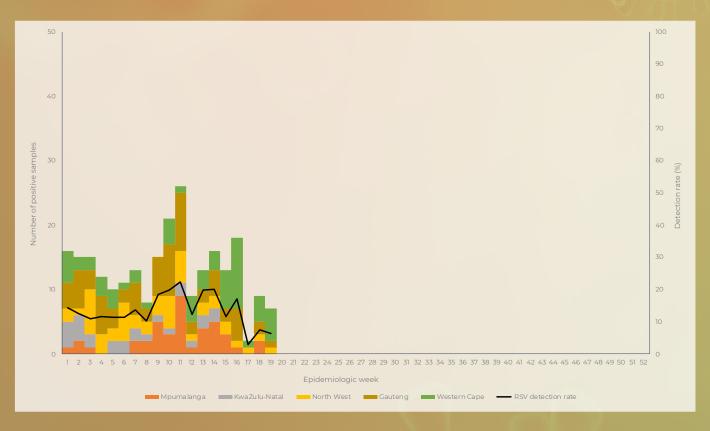


Figure 12. Number of samples testing positive for respiratory syncytial virus* by province and detection rate by week

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

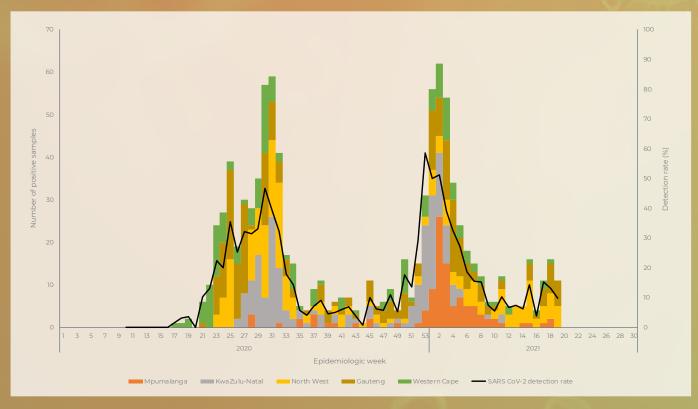


Figure 13. Number oof samples testing positive for SARS-CoV-2* by province and detection rate by week

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)	197	954
Helen Joseph-Rahima Moosa (GP)	257	1 383
Klerksdorp-Tshepong (NW)	223	872
Mapulaneng-Matikwana (MP)	96	554
Red Cross (WC)	43	1 230
Mitchell's Plain (WC)	120	673
Tintswalo (MP)	9	70
Total:	945	5 736

^{**}SARS-CoV-2 was detected in 19 of 135 (14%) 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 – 16 May 2021

Characteristic	Influenza-like illness (ILI), public-sector, n=314 (%)	Pneumonia, n=945 (%)
Age group		
0-9	33/314 (11)	68/945 (7)
10-19	24/314 (7)	7/945 (1)
20-39	138/314 (44)	167/945 (18)
40-59	96/314 (30)	349/945 (37)
60-79	22/314 (7)	324/945 (34)
≥80	1/314 (<1)	30/945 (3)
Sex-female	184/314 (59)	576/945 (61)
Province*		
Gauteng	N/A	257/945 (27)
KwaZulu-Natal	39/314 (12)	197/945 (21)
Mpumalanga**	26/314 (8)	105/945 (11)
North West	137/314 (44)	223/945 (24)
Western Cape	112/314 (36)	163/945 (17)
Race		
Black	219/314 (70)	786/941 (84)
Coloured	92/314 (29)	113/941 (12)
Asian/Indian	0/314 (0)	23/941 (2)
Other	3/314 (1)	19/941 (2)
Presentation		
Fever	304/314 (97)	527/941 (56)
Cough	312/314 (99)	908/941 (96)
Shortness of breath	101/314 (32)	751/941 (80)
Chest pain	132/314 (42)	404/941 (43)
Diarrhoea	31/314 (10)	62/941 (7)

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Characteristic	Influenza-like illness (ILI), public-sector, n=314 (%)	Pneumonia, n=945 (%)
Underlying conditions		U
Hypertension	12/314 (4)	124/941 (13)
Cardiac	0/314 (0)	8/941 (1)
Lung disease	0/314 (0)	1/941 (<1)
Diabetes	6/314 (2)	199/941 (21)
Cancer	0/314 (0)	6/941 (1)
Tuberculosis	1/314 (<1)	27/941 (3)
HIV-infection	45/314 (14)	194/941 (21)
Other ***	8/3314 (3)	80/941 (9)
Management		
Oxygen therapy	2/314 (1)	689/941 (73)
ICU admission	N/A	25/941 (3)
Ventilation	N/A	28/941 (3)
Outcome***		
Died	0/314 (0)	135/941 (14)

