WEEKLY RESPIRATORY PATHOGENS SURVEILLANCE **REPORT**



SOUTH AFRICA WEEK 15 2021

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National syndromic 12-16 surveilance for pneumonia Influenza Respiratory syncytial virus SARS-CoV-2

Summary of laboratory confirmed SARS-CoV-2 cases

CUMULATIVE DATA FROM

MARCH 2020

2021

HIGHLIGHTS: WEEK 15

- 2021 RSV season has not started yet.
- · One influenza A (H3N2) was detected in week 9 of 2021 from pneumonia surveillance sentinel site in Western Cape and one influenza B (Victoria) was detected in week 15 (current reporting week) from ILI sentinel site in KwaZulu-Natal. Influenza season has not started.
- · From 2 March 2020 to 18 April 2021, a total of 1 235 COVID-19 cases were detected from all surveillance programmes. Number of new cases detected continued to decrease in influenza-like illness (ILI) programme whereas an increase was noted in the current reporting week in pneumonia surveillance programme compared to the past weeks. Of the 898 hospitalised COVID-19 cases reported with available data on outcome, 126 (14%) died.

WEEK 15 2021 REPORTING PERIOD 4 JANUARY 2021 TO 18 APRIL 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	An acute respiratory illness with a temperature (≥38°C) and cough, & onset ≤10 days	An acute respiratory illness with a temperature (≥38°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

^{***}Started in November 2020

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

WEEK 15 2021 REPORTING PERIOD 2 MARCH 2020 TO 18 APRIL 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 458 patients meeting ILI case definition were received from 4 ILI sites. Influenza was not detected. (Figure 1 and Table 1). In addition, influenza B (Victoria) was detected in one of 203 (0.5%) specimens from patients who met suspected SARS-CoV-2 case definition but did not meet the ILI case definition.

Viral Watch programme: During the same period, specimens were received from 38 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 1 467 patients with severe respiratory illness (SRI) were received from the 6 sentinel sites. Influenza A(H3N2) was detected in one (0.1%) patient. (Figure 9 and Table 7). Influenza was not detected in 62 specimens from patients who met suspected SARS-CoV-2 case definition but did not meet the SARI case definition

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, 458 specimens were tested and RSV was detected in specimens of 49 (11%) patients.

Viral Watch programme: During the same period, 38 specimens were tested and RSV was detected in specimens of four (11%) patients.

Pneumonia surveillance: Since the beginning of 2021, 1 467 specimens were tested and RSV was detected in specimens of 209 (14%) patients.

In addition, RSV was detected in 14 of 265 (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 1768 patients were tested and SARS-CoV-2 was detected in 292 (17%) patients.

Viral Watch programme: From March 2020 to date, specimens were tested from 317 patients and SARS-CoV-2 was detected in 42 (13%) patients.

Pneumonia surveillance: From March 2020 to date. specimens from 5 322 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 901 (17%) patients.

In addition, SARS-CoV-2 was detected in 65 of 457 (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

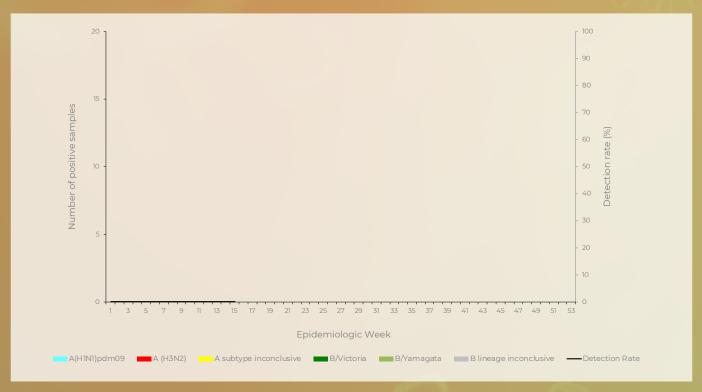


Figure 1. Number of positive samples* by influenza subtype and lineage and detection rate** by week

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	Total samples
Agincourt (MP)	0	0	0	0	0	0	76
Eastridge (WC)	0	0	0	0	0	0	93
Edendale Gateway (KZ)	0	0	О	0	0	0	62
Jouberton (NW)	0	0	О	0	0	0	168
Mitchell's Plain (WC)	О	0	О	0	0	0	59
Total:	0	0	0	0	0	0	458

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

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

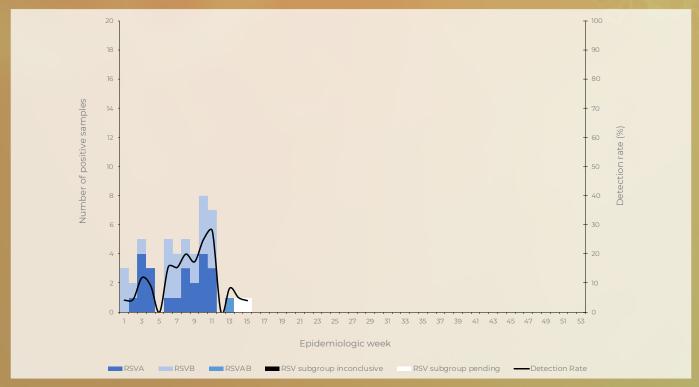


Figure 2. Number of samples testing positive for respiratory syncytial virus by subgroup and detection rate by week

Table 2. Cumulative number of respiratory syncytial virus subgroups identified and total number of samples tested by clinic and

Clinic (Province)	RSVA	RSVB	RSVAB	RSV subgroup inconclusive	RSV subgroup pending*	Total samples
Agincourt (MP)	11	7		0	0	76
Eastridge (WC)	8	0	0	0	0	93
Edendale Gateway (KZ)	0	4	0	0		62
Jouberton (NW)	2	13	0	0		168
Mitchell's Plain (WC)	1	0	0	0	0	59
Total	22	24	1	0	2	458

KZ: KwaZulu-Natal; NW: North West; WC: Western Cape; MP: Mpumalanga 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 nine of 203 (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

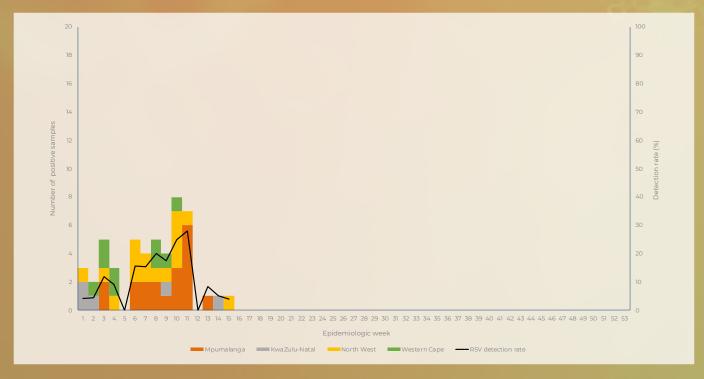


Figure 3. Number of samples testing positive for respiratory syncytial virus by province and detection rate by week



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

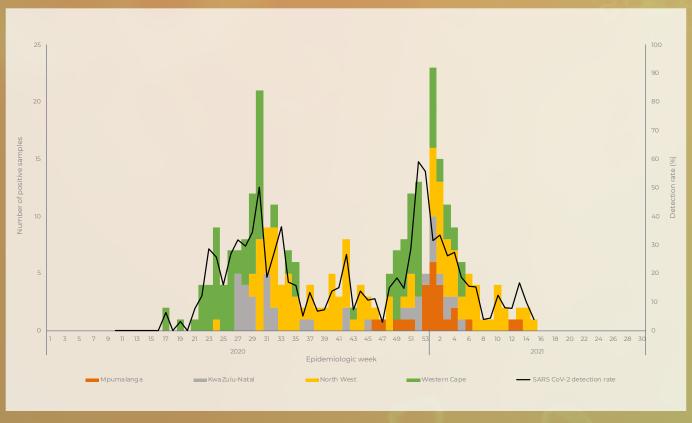


Figure 4. Number of samples testing positive for SARS-CoV-2* by province and detection rate by week

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)	25	105
Eastridge (WC)	47	582
Edendale Gateway (KZ)	39	203
Jouberton (NW)	116	490
Mitchell's Plain (WC)	65	388
Total:	292	1768

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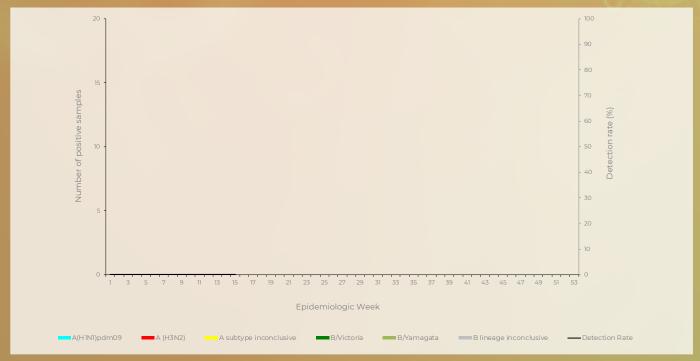


Figure 5. Number of positive samples* by influenza subtype and lineage and detection rate** by week

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	0	0	0	0	33
Limpopo	0	0	О	0	0	0	0
Mpumalanga	0	0	О	0	0	0	
North West	0	0	0	0	0	0	0
Northern Cape	0	0	О	0	0	0	0
Western Cape	0	0	О	0	0	0	4
Total:	0	0	0	0	0	0	38

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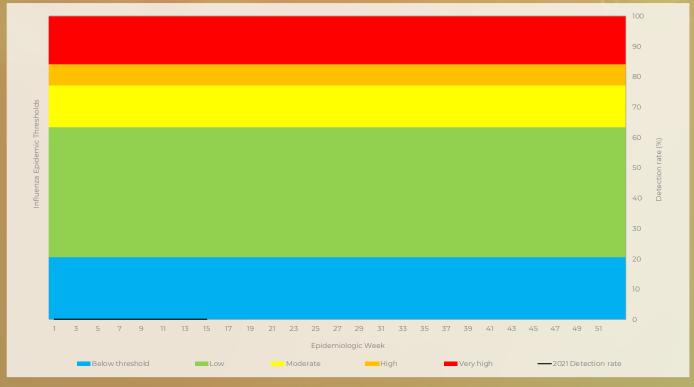


Figure 6. ILI surveillance (Viral Watch) percentage influenza detections and epidemic thresholds*

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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	33
Limpopo	0	0
Mpumalanga	0	
North West	0	0
Northern Cape	0	0
Western Cape	0	4
Total:	4	38

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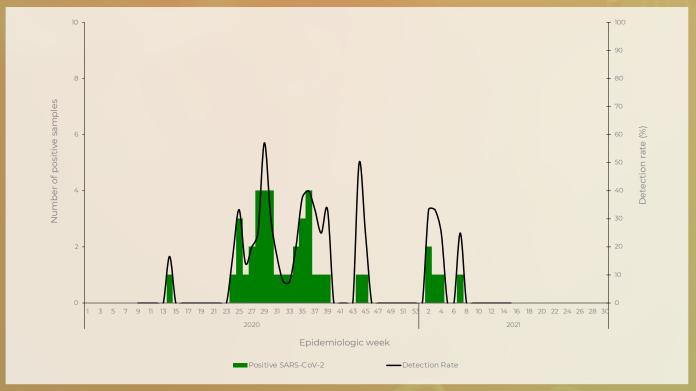


Figure 8. Number of samples testing positive for SARS-CoV-2*, and detection rate by week

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		4
Free State		14
Gauteng	30	193
Limpopo	0	2
Mpumalanga		6
North West	0	0
Northern Cape	0	2
Western Cape	9	96
Total:	42	317

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

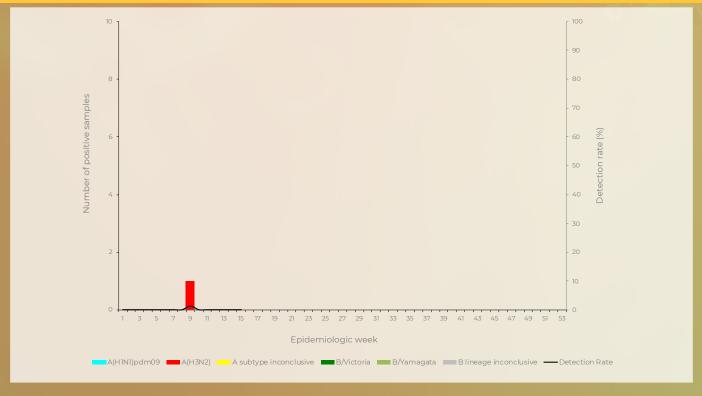


Figure 9. Number of positive samples* by influenza subtype and lineage and detection rate** by week

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	Total samples
Edendale (KZ)	0	0	0	0	0	0	203
Helen Joseph-Rahima Moosa (GP)	0	0	0	0	0	0	424
Klerksdorp-Tshepong (NW)	0	0	0	0	0	0	217
Mapulaneng-Matikwana (MP)	0	0	0	0	0	0	212
Red Cross (WC)	0	0	О	0	0	0	203
Mitchell's Plain (WC)	0		О	0	0	0	156
Tintswalo (MP)	0	О	О	0	0	0	52
Total:	0	1	0	0	0	0	1 467

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 was not detected from 62 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

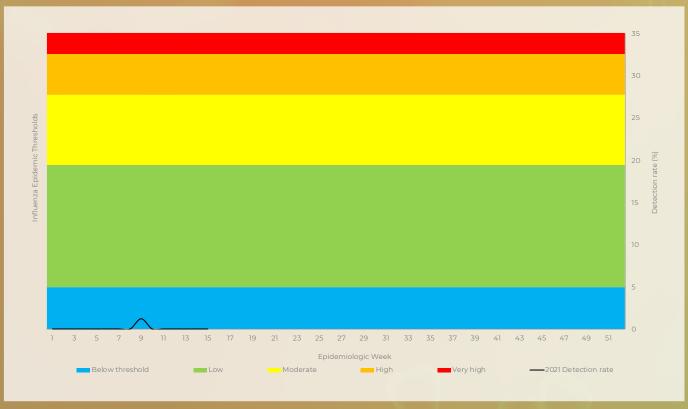


Figure 10. National syndromic surveillance for pneumonia percentage influenza detections and epidemic thresholds*

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

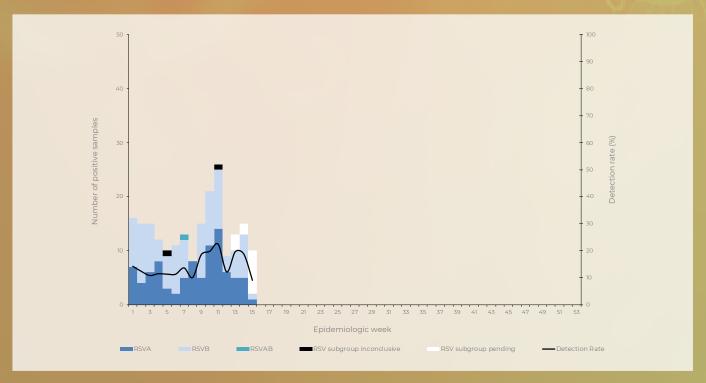


Figure 11. Number of samples testing positive for respiratory syncytial virus by subgroup and detection rate by week

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)	3	21	0	0	2	203
Helen Joseph-Rahima Moosa (GP)	27	35	О	0	2	424
Klerksdorp-Tshepong (NW)	7	33	О	2	2	217
Mapulaneng-Matikwana (MP)	16	5		0		212
Red Cross (WC)	22	5	О	0	4	203
Mitchell's Plain (WC)	5	2	О	0		156
Tintswalo (MP)	10	2	О	0	1	52
Total:	90	103	1	2	13	1 467

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 62 (8%) 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

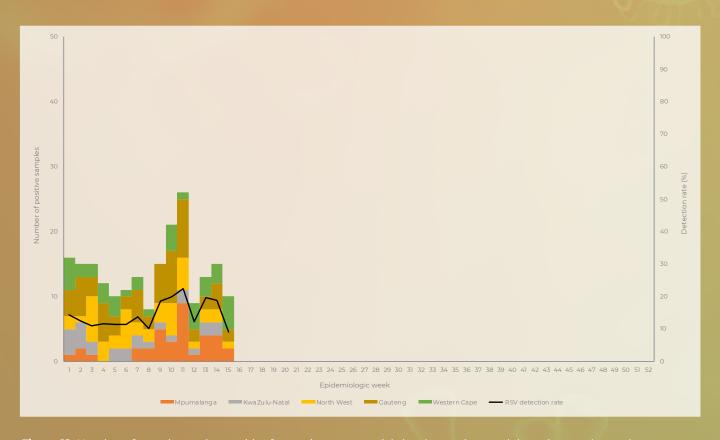


Figure 12. Number of samples testing positive for respiratory syncytial virus by province and detection rate by week

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

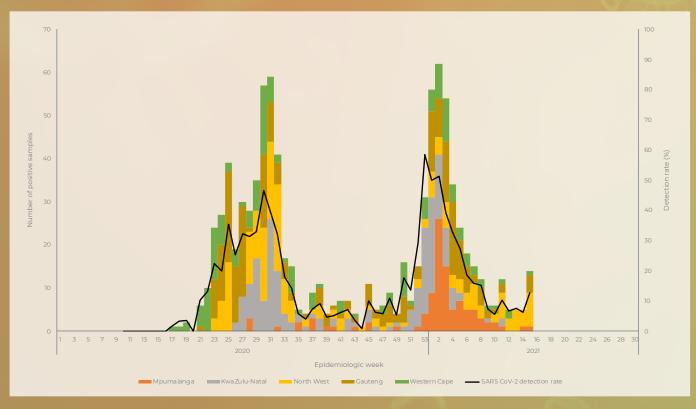


Figure 13. Number of samples testing positive for SARS-CoV-2* by province and detection rate by week

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	902
Helen Joseph-Rahima Moosa (GP)	239	1262
Klerksdorp-Tshepong (NW)	204	807
Mapulaneng-Matikwana (MP)	93	510
Red Cross (WC)	42	1167
Mitchell's Plain (WC)	117	623
Tintswalo (MP)	9	51
Total:	901	5 322

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=292 (%)	Pneumonia, n=901 (%)
Age group		
0-9	32/292 (11)	65/901 (7)
10-19	21/292 (7)	7/901 (1)
20-39	128/292 (44)	162/901 (18)
40-59	88/292 (30)	332/901 (37)
60-79	22/292 (7)	306/901 (34)
≥80	1/292 (<1)	29/901 (3)
Sex-female	166/292 (57)	550/901 (61)
Province*		
Gauteng	N/A	239/901 (26)
KwaZulu-Natal	39/292 (13)	197/901 (22)
Mpumalanga**	25/292 (9)	102/901 (11)
North West	116/292 (40)	204/901 (23)
Western Cape	112/292 (38)	159/901 (18)
Race		
Black	199/290 (68)	752/898 (84)
Coloured	90/290 (31)	109/898 (12)
Asian/Indian	0/290 (0)	22/898 (2)
Other	3/290 (1)	15/898 (2)
Presentation		
Fever	282/292 (97)	501/898 (56)
Cough	291/292 (99)	867/898 (97)
Shortness of breath	93/292 (32)	723/898 (81)
Chest pain	120/292 (41)	394/898 (44)
Diarrhoea	27/292 (9)	60/898 (7)

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Characteristic	Influenza-like illness (ILI), public-sector, n=292 (%)	Pneumonia, n=901 (%)
Underlying conditions		
Hypertension	12/292 (4)	123/898 (14)
Cardiac	0/292 (0)	8/898 (1)
Lung disease	0/292 (0)	1/898 (<1)
Diabetes	6/292 (2)	191/898 (21)
Cancer	0/292 (0)	5/898 (1)
Tuberculosis	1/292 (<1)	26/898 (3)
HIV-infection	41/292 (14)	188/898 (21)
Other ***	8/292 (3)	80/898 (9)
Management		
Oxygen therapy	2/292 (1)	650/898 (72)
ICU admission	N/A	22/898 (2)
Ventilation	N/A	25/898 (3)
Outcome***		
Died	0/292 (0)	126/898 (14)

