WEEKLY RESPIRATORY PATHOGENS SURVEILLANCE **REPORT**



SOUTH AFRICA WEEK 33 2021

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CUMULATIVE DATA FROM

confirmed SARS-CoV-2 cases



2021

HIGHLIGHTS: WEEK 33

- RSV activity remains below seasonal threshold in both influenza-like illness (ILI) and pneumonia surveillance programmes.
- · One new case of influenza from Western Cape was detected in week 33. To date, 70 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 22 August 2021, a total of 2 583 COVID-19 cases were detected from all surveillance programmes. A decline in detection rate has been noted in both ILI and pneumonia surveillance programmes in this reporting week (week33). Of the 1 585 hospitalised COVID-19 cases reported with available data on outcome, 259 (16%) died.

WEEK 33 2021 REPORTING PERIOD 4 JANUARY 2021 TO 22 AUGUST 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 33 2021 REPORTING PERIOD 2 MARCH 2020 TO 22 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 70 influenza cases detected in surveillance sites in 2021, the majority (n=59, 84%) were influenza B/Victoria.

ILI programme: In 2021 to date, specimens from 1179 patients meeting ILI case definition were received from 4 ILI sites. Influenza was detected in nine (1%) patients, of which seven (77%) were influenza B(Victoria) and two (23%) were influenza B (lineage inconclusive). (Figure 1 and Table 1).

Viral Watch programme: In 2021 to date, specimens were received from 164 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 4 003 patients with severe respiratory illness (SRI) were received from the 6 sentinel sites. Influenza was detected in 37 (1%) patients, of which two (5.4%) were influenza A(H3N2), 33 (89.2%) influenza B (Victoria) and two (5.4%) were influenza B (pending lineage results). (Figure 9 and Table 7).

In addition, influenza was detected in 15 (2%) specimens, 14 (93%) were influenza B (Victoria) and one (7%) was influenza B (pending lineage results) from 647 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, 1 179 specimens were tested and RSV was detected in specimens of 72 (6%) patients.

Viral Watch programme: In 2021 to date, 164 specimens were tested and RSV was detected in specimens of six (4%) patients.

Pneumonia surveillance: Since the beginning of 2021, 4 003 specimens were tested and RSV was detected in specimens of 391 (10%) patients.

In addition, RSV was detected in 21 of 647 (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 2 490 patients were tested and SARS-CoV-2 was detected in 511 (21%) patients.

Viral Watch programme: From March 2020 to date, specimens were tested from 443 patients and SARS-CoV-2 was detected in 83 (19%) patients.

Pneumonia surveillance: From March 2020 to date, specimens from 8 019 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 1822 (23%) patients.

In addition, SARS-CoV-2 was detected in 167 of 850 (20%) specimens from patients who met suspected SARS-CoV-2 case definition but did not meet the pneumonia/ILI surveillance case definitions.

WEEK 33 2021 REPORTING PERIOD 4 JANUARY 2021 TO 22 AUGUST 2021

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

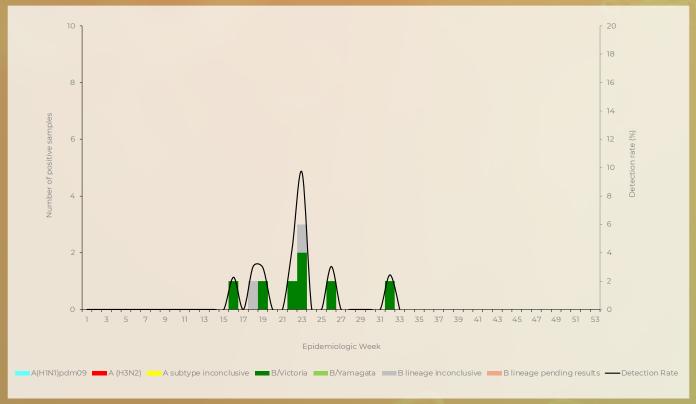


Figure 1. Number of positive samples* by influenza subtype and lineage** and detection rate*** by week

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	168
Eastridge (WC)	0	0	0	0	О	О	0	176
Edendale Gateway (KZ)	0	0	О	3	О	2	0	139
Jouberton (NW)	0	0	О	4	О	О	0	571
Mitchell's Plain (WC)	0	0	О	0	О	О	0	125
Total:	0	0	0	7	0	2	0	1 179

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

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

WEEK 33 2021 REPORTING PERIOD 4 JANUARY 2021 TO 22 AUGUST 2021

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

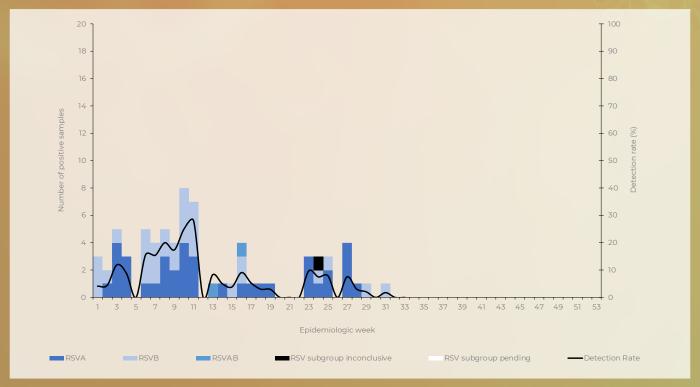


Figure 2. Number of samples testing positive for respiratory syncytial virus** by subgroup and detection rate by week

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	168
Eastridge (WC)	22			0	0	176
Edendale Gateway (KZ)		6	0	0	0	139
Jouberton (NW)	2	17	0		0	571
Mitchell's Plain (WC)	2	0	0	0	0	125
Total	38	31	2	1	0	1 179

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

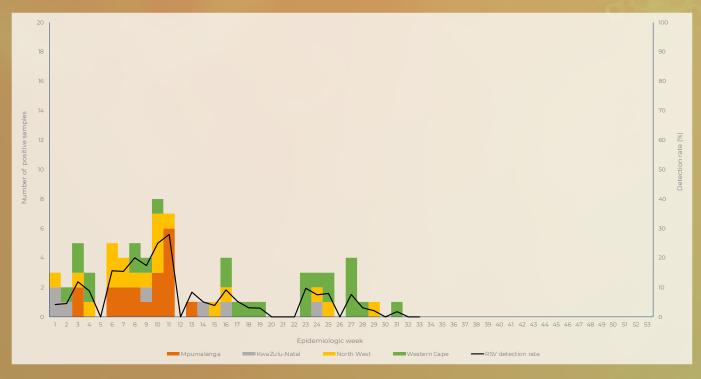


Figure 3. Number of samples testing positive for respiratory syncytial virus* by province and detection rate by week

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

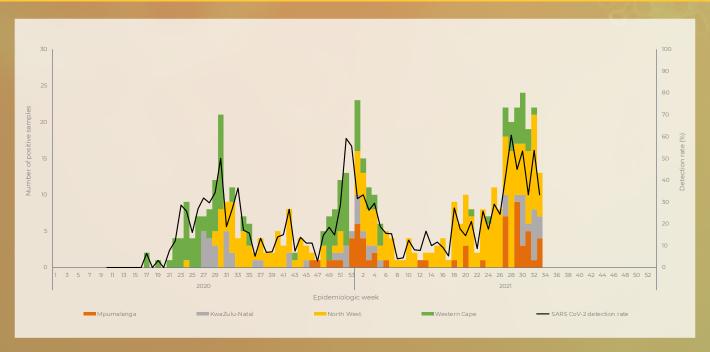


Figure 4. Number of samples testing positive for SARS-CoV-2*s by province and detection rate by week

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)	59	198
Eastridge (WC)	54	665
Edendale Gateway (KZ)	61	282
Jouberton (NW)	253	891
Mitchell's Plain (WC)	84	454
Total:	511	2 490

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

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

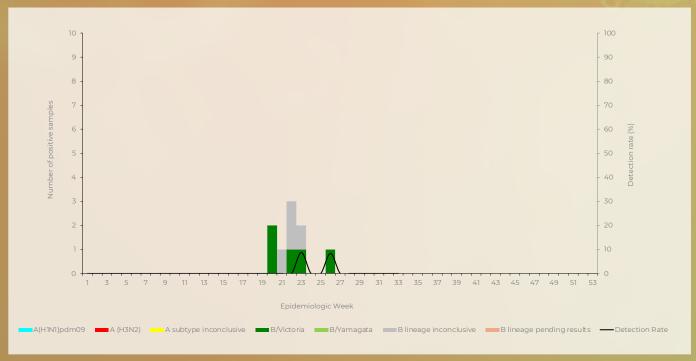


Figure 5. Number of positive samples* by influenza subtype and lineage and detection rate** by week

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	0	0	0	0	0	0
Gauteng	0	О	О	4	0	4	О	139
Limpopo	0	О	О	О	0	О	0	0
Mpumalanga	0	О	0	0	0	О	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	20
Total:	0	0	0	5	0	4	0	164

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

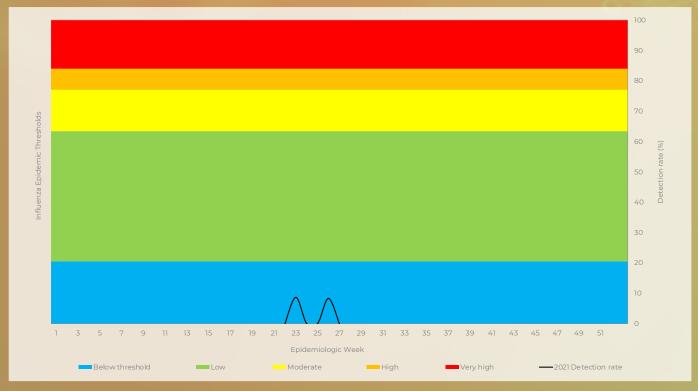


Figure 6. ILI surveillance (Viral Watch) percentage influenza detections and epidemic thresholds*

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

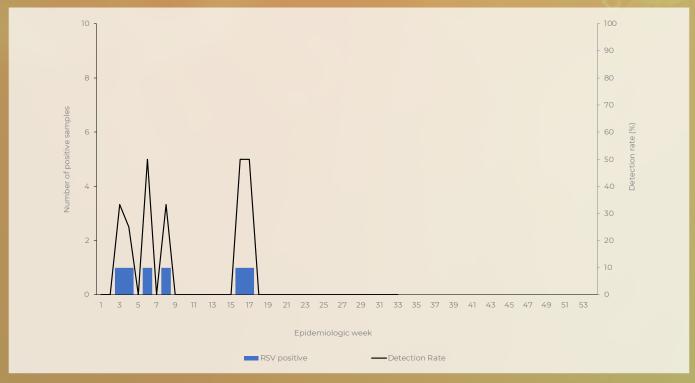


Figure 7. Number of samples testing positive for RSV*, and detection rate by week

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	139
Limpopo	0	0
Mpumalanga	0	2
North West	0	2
Northern Cape	0	0
Western Cape	2	20
Total:	6	164

WEEK 33 2021 REPORTING PERIOD 2 MARCH 2020 TO 22 AUGUST 2021

INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

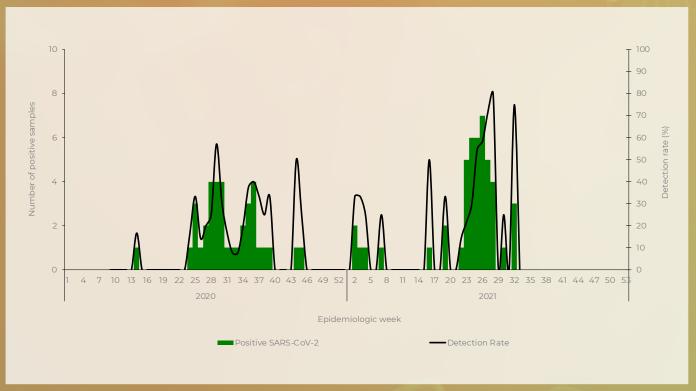


Figure 8. Number of samples testing positive for SARS-CoV-2*, and detection rate by week

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	65	299
Limpopo	0	2
Mpumalanga		7
North West	0	2
Northern Cape	0	2
Western Cape	15	112
Total:	83	443

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

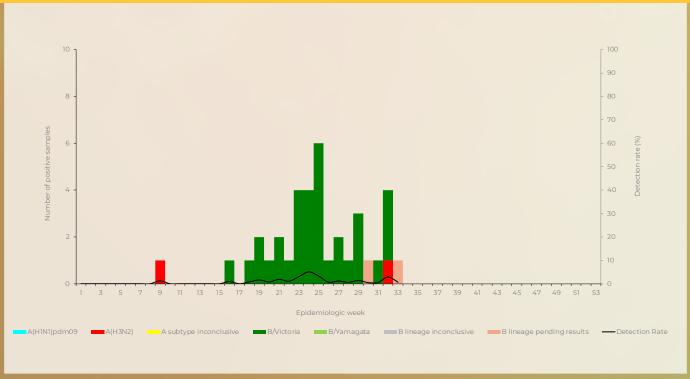


Figure 9. Number of positive samples* by influenza subtype and lineage** and detection rate*** by week

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	616
Helen Joseph-Rahima Moosa (GP)	0		0	14	0	0	0	1041
Klerksdorp-Tshepong (NW)	0	0	Ο	3	0	0		675
Mapulaneng- Matikwana (MP)	0	0	0		0	0	0	410
Red Cross (WC)	0	0	0	6	0	0		519
Mitchell's Plain (WC)	0		0	0	0	0	0	584
Tintswalo (MP)	0	О	0	1	0	0	0	158
Total:	0	2	0	33	0	0	2	4 003

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 detected in four (3%) of 129 specimens from patients who met suspected SARS-CoV-2 case definition but did not meet pneumonia (SRI) case definition. Three (75%) were influenza B (Victoria) and one (25%) was influenza B (pending lineage results). 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

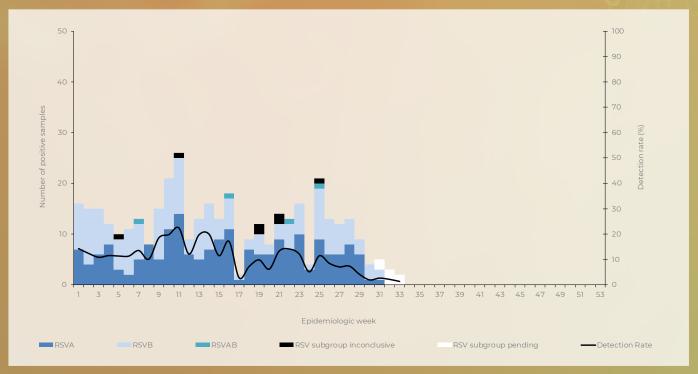


Figure 11. Number of samples testing positive for respiratory syncytial virus* by subgroup and detection rate by week

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	616
Helen Joseph-Rahima Moosa (GP)	37	42	О	0	0	1041
Klerksdorp-Tshepong (NW)	8	44	О	2	О	675
Mapulaneng-Matikwana (MP)	20	7		О	О	410
Red Cross (WC)	81	41	2	4	6	519
Mitchell's Plain (WC)	36	10				584
Tintswalo (MP)	10	3	0	0	О	158
Total:	197	176	4	7	7	4 003

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 129 (5%) 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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WEEK 33 2021 REPORTING PERIOD 4 JANUARY 2021 TO 22 AUGUST 2021

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

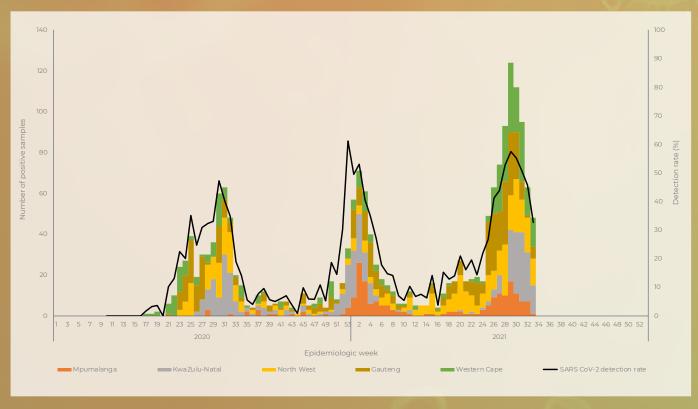


Figure 13. Number oof samples testing positive for SARS-CoV-2* by province and detection rate by week

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)	389	1 433
Helen Joseph-Rahima Moosa (GP)	467	1 894
Klerksdorp-Tshepong (NW)	423	1 277
Mapulaneng-Matikwana (MP)	153	715
Red Cross (WC)	56	1 487
Mitchell's Plain (WC)	291	1 055
Tintswalo (MP)	43	158
Total:	1 822	8 019

**SARS-CoV-2 was detected in 29 of 200 (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.

WEEK 33 2021 REPORTING PERIOD 2 MARCH 2020 TO 22 AUGUST 2021

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 – 22 August 2021

Characteristic	Influenza-like illness (ILI), public-sector, n=649 (%)	Pneumonia, n=1 851 (%)
Age group		
0-9	49/649 (8)	123/1851 (7)
10-19	44/649 (7)	12/1851 (1)
20-39	303/649 (47)	325/1851 (17)
40-59	204/649 (31)	694/1851 (37)
60-79	47/649 (7)	627/1851 (34)
≥80	2/649 (<1)	70/1851 (4)
Sex-female	394/649 (61)	1121/1851 (61)
Province*		
Gauteng	N/A	468/1851 (25)
KwaZulu-Natal	101/649 (16)	394/1851 (21)
Mpumalanga**	80/649 (12)	219/1851 (12)
North West	326/649 (50)	423/1851 (23)
Western Cape	142/649 (22)	347/1851 (19)
Race		
Black	479/639 (75)	1440/1821 (79)
Coloured	130/639 (20)	281/1821 (15)
Asian/Indian	4/639 (1)	46/1821 (3)
White	21/639 (3)	37/1821 (2)
Other	5/639 (1)	17/1821 (1)
Presentation		
Fever	503/639 (79)	868/1821 (48)
Cough	621/639 (97)	1748/1821 (96)
Shortness of breath	223/639 (35)	1434/1821 (79)
Chest pain	268/639 (42)	728/1821 (40)
Diarrhoea	48/639 (8)	110/1821 (6)

WEEK 33 2021 REPORTING PERIOD 2 MARCH 2020 TO 22 AUGUST 2021

Characteristic	Influenza-like illness (ILI), public-sector, n=649 (%)	Pneumonia, n=1 851 (%)
Underlying conditions		U
Hypertension ^{\$}	17/504 (3)	248/1551 (16)
Cardiac	2/639 (<1)	44/1821 (2)
Lung disease	0/639 (0)	2/1821 (<1)
Diabetes	14/639 (2)	366/1821 (20)
Cancer	1/639 (<1)	11/1821 (1)
Tuberculosis	9/639 (1)	42/1821 (2)
HIV-infection	116/639 (18)	384/1821 (21)
Other ***	12/639 (2)	90/1821 (5)
Management		
Oxygen therapy	8/639 (1)	1 291/1821 (71)
ICU admission	N/A	38/1821 (2)
Ventilation	N/A	46/1821 (3)
Outcome***		
Died	0/623 (0)	259/1585 (16)

Note: Children may be over-represented amongst hospitalised patients due to the inclusion of a large paediatric hospital in Cape Town.

Of the 259 patients who died, three were in <20 age group, 19 in the 20-39 year age group, 76 in the 40-59 year age group, and 161 were ≥60 years; 150/259 (58%) were female.

