WEEKLY RESPIRATORY PATHOGENS SURVEILLANCE **REPORT**



SOUTH AFRICA WEEK **25** 2021

CONTENTS

Surveillance programme description	2
Comments	3
Systematic Influenza-like illness (ILI) surveillance Influenza Respiratory syncytial virus SARS-CoV-2	4-7
Influenza-like illness (ILI) Viral Watch Influenza SARS-CoV-2	8-11
National syndromic surveilance for pneumonia Influenza Respiratory syncytial virus SARS-CoV-2	12-16

HIGHLIGHTS: WEEK 25

- RSV activity remains below seasonal threshold in both influenza-like illness (ILI) and pneumonia surveillance programmes.
- · Six new cases of influenza, four from Gauteng, one each from KwaZulu-Natal and North West were detected in week 25. To date, 48 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 27 June 2021, a total of 1 553 COVID-19 cases were detected from all surveillance programmes. An increase in number of positive samples detected has been noted in both the pneumonia surveillance and ILI programme in this reporting week compared to previous week. Of the 1128 hospitalised COVID-19 cases reported with available data on outcome, 163 (14%) died.

CUMULATIVE DATA FROM

MARCH 2020

Summary of laboratory

confirmed SARS-CoV-2 cases

2021

WEEK 25 2021 | REPORTING PERIOD 4 JANUARY 2021 TO 27 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 25 2021 REPORTING PERIOD 2 MARCH 2020 TO 27 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 48 influenza cases detected in surveillance sites in 2021, the majority (40, 83%) were influenza B/Victoria.

ILI programme: In 2021 to date, specimens from 824 patients meeting ILI case definition were received from 4 ILI sites. Influenza was detected in six (0.7%) patients, of which four (66.7%) were influenza B(Victoria) and two (33.3%) were influenza B (lineage inconclusive). (Figure 1 and Table 1).

Viral Watch programme: In 2021 to date, specimens were received from 128 patients from Viral Watch sites in five of the 8 provinces participating in surveillance. Influenza was detected in eight (6.3%) patients, of which four (50%) were influenza B (Victoria) and four (50%) influenza B (lineage inconclusive). (Figure 5 and Table 4).

Pneumonia surveillance: Since the beginning of 2021, specimens from 2 605 patients with severe respiratory illness (SRI) were received from the 6 sentinel sites. Influenza was detected in 23 (0.9%) patients, of which one (4.3%) was influenza A(H3N2), 21 (91.4%) influenza B (Victoria) and one (4.3%) was influenza B (pending lineage results). (Figure 9 and Table 7).

In addition, influenza was detected in 11 (2%) specimens, all were influenza B (Victoria) from 466 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, 824 specimens were tested and RSV was detected in specimens of 65 (8%) patients.

Viral Watch programme: In 2021 to date, 128 specimens were tested and RSV was detected in specimens of six (5%) patients.

Pneumonia surveillance: Since the beginning of 2021, 2 605 specimens were tested and RSV was detected in specimens of 326 (13%) patients.

In addition, RSV was detected in 20 of 466 (4%) 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 2 135 patients were tested and SARS-CoV-2 was detected in 357 (17%) patients.

Viral Watch programme: From March 2020 to date. specimens were tested from 407 patients and SARS-CoV-2 was detected in 62 (15%) patients.

Pneumonia surveillance: From March 2020 to date, specimens from 6583 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 1134 (17%) patients.

In addition, SARS-CoV-2 was detected in 95 of 658 (14%) specimens from patients who met suspected SARS-CoV-2 case definition but did not meet the pneumonia/ILI surveillance case definitions.

WEEK 25 2021 REPORTING PERIOD 4 JANUARY 2021 TO 27 JUNE 2021

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

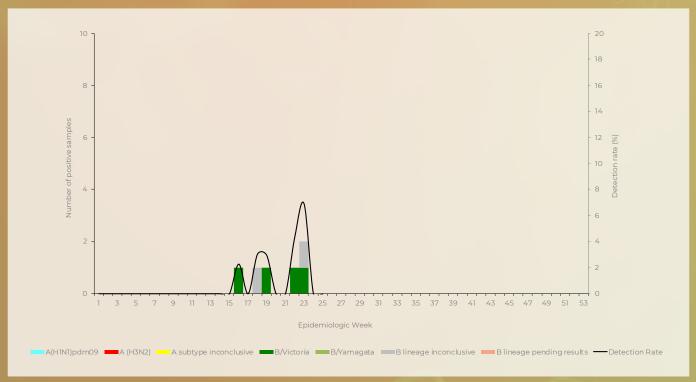


Figure 1. Number of positive samples* by influenza subtype and lineage** and detection rate*** by week

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	О	0	0	0	0	120
Eastridge (WC)	0	0	0	0	0	0	О	142
Edendale Gateway (KZ)	0	0	О	2	0	2	О	97
Jouberton (NW)	0	0	О	2	0	0	0	374
Mitchell's Plain (WC)	0	0	О	О	0	0	0	91
Total:	0	0	0	4	0	2	0	824

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

^{**}Influenza was detected from 10 of 382 (2.6%), all were influenza B(Victoria) 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

WEEK 25 2021 REPORTING PERIOD 4 JANUARY 2021 TO 27 JUNE 2021

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

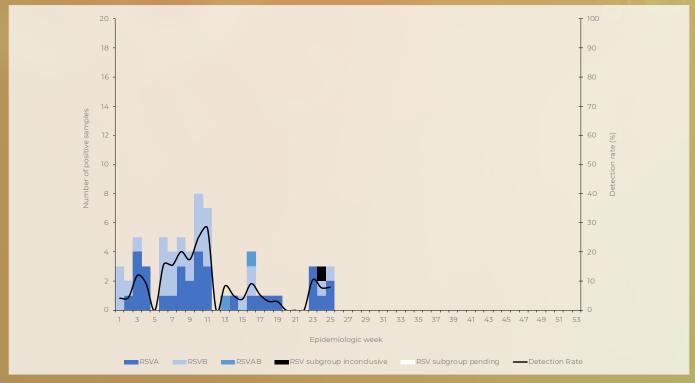


Figure 2. Number of samples testing positive for respiratory syncytial virus** by subgroup and detection rate by week

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	120
Eastridge (WC)	17	0		0	0	142
Edendale Gateway (KZ)		6	0	0	0	97
Jouberton (NW)	2	16	0		0	374
Mitchell's Plain (WC)	2	0	0	0	0	91
Total	33	29	2	1	0	824

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 382 (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.

WEEK 25 2021 REPORTING PERIOD 4 JANUARY 2021 TO 27 JUNE 2021

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

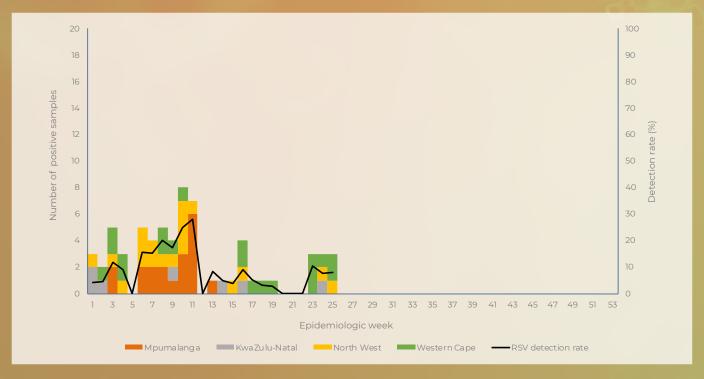


Figure 3. Number of samples testing positive for respiratory syncytial virus* by province and detection rate by week

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PAGE 6

WEEK **25** 2021 REPORTING PERIOD 2 MARCH 2020 TO **27 JUNE 2021**

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

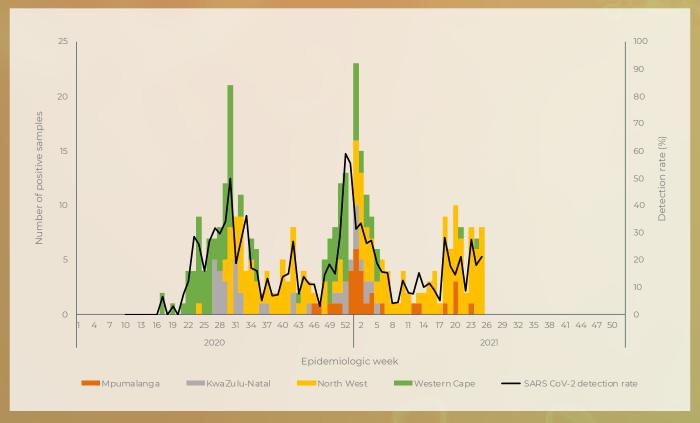


Figure 4. Number of samples testing positive for SARS-CoV-2*s by province and detection rate by week

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	630
Edendale Gateway (KZ)	39	238
Jouberton (NW)	174	697
Mitchell's Plain (WC)	67	420
Total:	357	2 135

WEEK 25 2021 | REPORTING PERIOD 4 JANUARY 2021 TO 27 JUNE 2021

INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

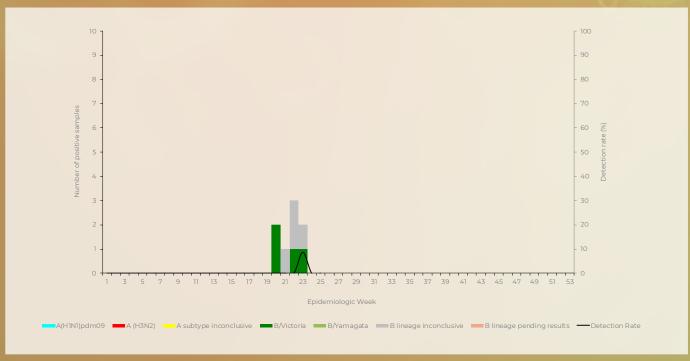


Figure 5. Number of positive samples* by influenza subtype and lineage and detection rate** by week

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	О		0	0	0	
Free State	0	0	0	0	0	0	0	0
Gauteng	0	О	О	3	0	4	О	112
Limpopo	0	О	О	О	0	О	0	0
Mpumalanga	0	О	0	0	0	О	0	
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	О	12
Total:	0	0	0	4	0	4	0	128

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PAGE 8

WEEK 25 2021 | REPORTING PERIOD 4 JANUARY 2021 TO 27 JUNE 2021

INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

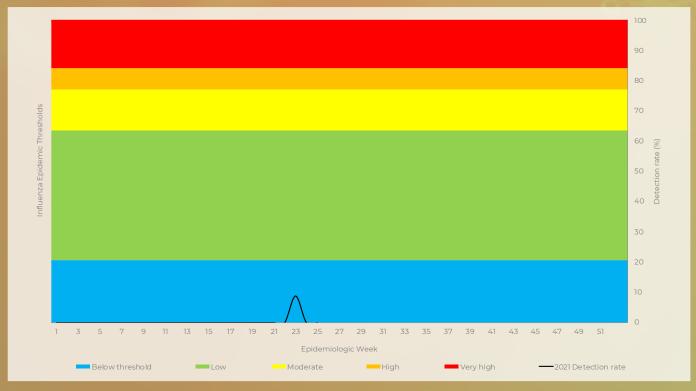


Figure 6. ILI surveillance (Viral Watch) percentage influenza detections and epidemic thresholds*

WEEK 25 2021 REPORTING PERIOD 4 JANUARY 2021 TO 27 JUNE 2021

INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

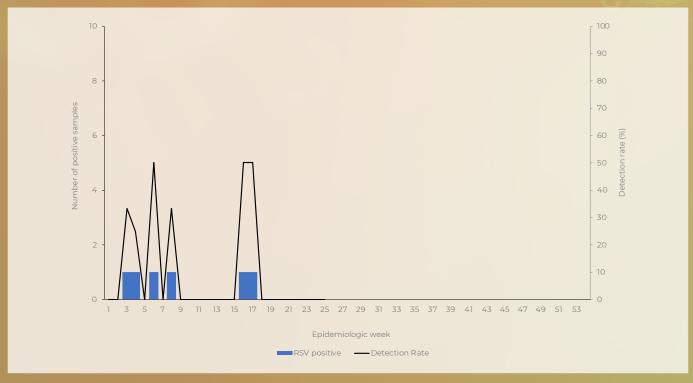


Figure 7. Number of samples testing positive for RSV*, and detection rate by week

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	1
Free State	0	0
Gauteng	4	112
Limpopo	0	0
Mpumalanga	0	
North West	0	2
Northern Cape	0	0
Western Cape	2	12
Total:	6	128

WEEK **25** 2021

REPORTING PERIOD 2 MARCH 2020 TO 27 JUNE 2021

INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

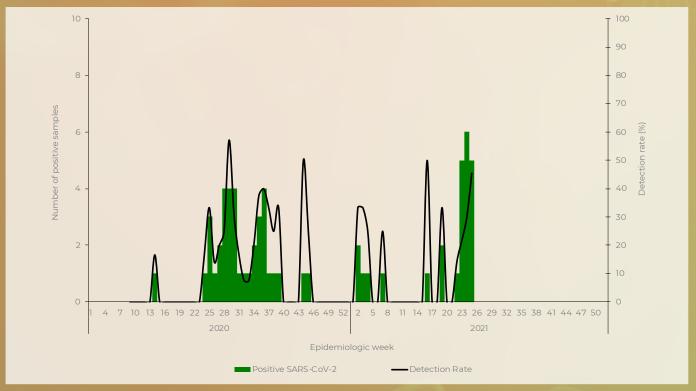


Figure 8. Number of samples testing positive for SARS-CoV-2*, and detection rate by week

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	49	272
Limpopo	0	2
Mpumalanga		6
North West	0	2
Northern Cape	0	2
Western Cape	10	104
Total:	62	407

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

WEEK 25 2021 REPORTING PERIOD 4 JANUARY 2021 TO 27 JUNE 2021

NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

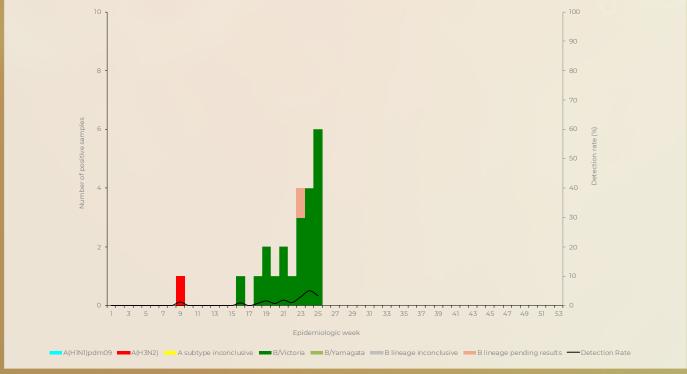


Figure 9. Number of positive samples* by influenza subtype and lineage** and detection rate*** by week

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	7	0	0	0	350
Helen Joseph-Rahima Moosa (GP)	0	0	О	11	0	0		732
Klerksdorp-Tshepong (NW)	0	0	О	3	0	0	0	414
Mapulaneng- Matikwana (MP)	0	0	О	0	0	0	0	316
Red Cross (WC)	0	О	О	0	0	0	0	388
Mitchell's Plain (WC)	0		0	0	0	0	0	302
Tintswalo (MP)	0	0	0	О	0	0	0	103
Total:	0	1	0	21	0	0	1/	2 605

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 84 (1.2%) 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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TOLL-FREE NUMBER 0800 029 999

PAGE **12**

WEEK 25 2021 | REPORTING PERIOD 4 JANUARY 2021 TO 27 JUNE 2021

NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

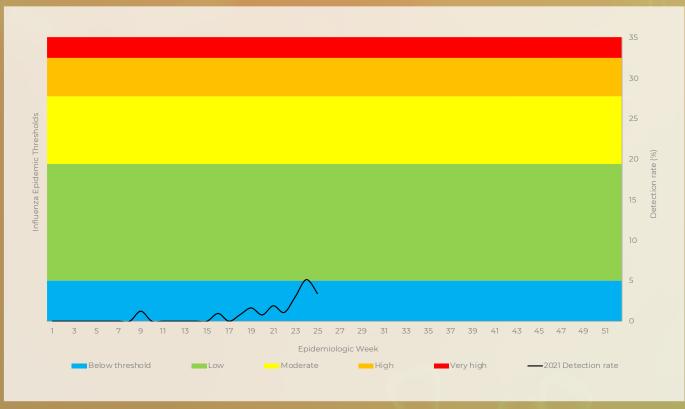


Figure 10. National syndromic surveillance for pneumonia percentage influenza detections and epidemic thresholds*

WEEK 25 2021 REPORTING PERIOD 4 JANUARY 2021 TO 27 JUNE 2021

NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

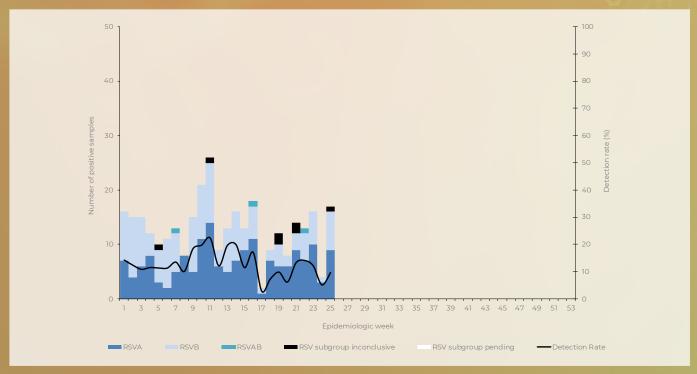


Figure 11. Number of samples testing positive for respiratory syncytial virus* by subgroup and detection rate by week

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	350
Helen Joseph-Rahima Moosa (GP)	35	42	О	0	0	732
Klerksdorp-Tshepong (NW)	8	41	0	2	0	414
Mapulaneng-Matikwana (MP)	20	7		0	0	316
Red Cross (WC)	64	25		4	0	388
Mitchell's Plain (WC)	27	4			0	302
Tintswalo (MP)	10	3	0	0	0	103
Total:	169	147	3	7	0	2 605

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 84 (6%) 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 **25** 2021

REPORTING PERIOD 4 JANUARY 2021 TO 27 JUNE 2021

NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

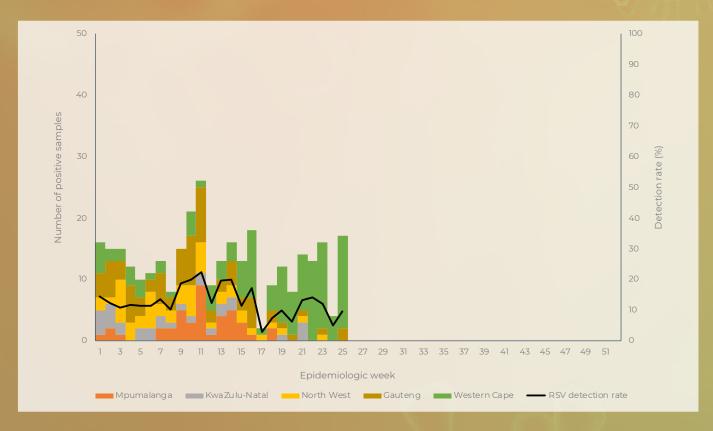


Figure 12. Number of samples testing positive for respiratory syncytial virus* by province and detection rate by week

*RSV was detected in five of 84 (6%) 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 epidemiological curve.

WEEK **25** 2021 REPORTING PERIOD 2 MARCH 2020 TO **27 JUNE 2021**

NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

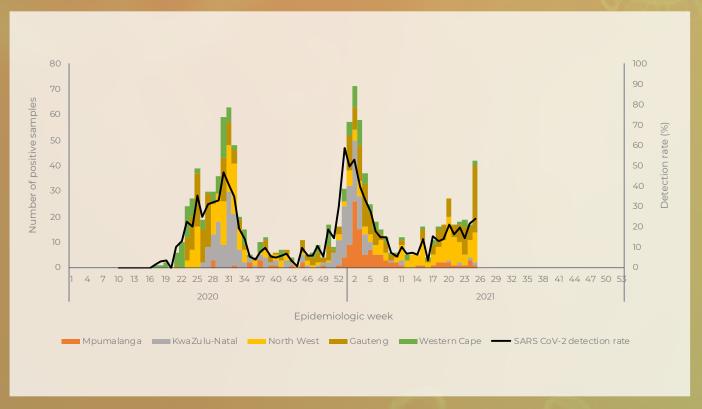


Figure 13. Number oof samples testing positive for SARS-CoV-2* by province and detection rate by week

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)	244	1 171
Helen Joseph-Rahima Moosa (GP)	318	1 567
Klerksdorp-Tshepong (NW)	286	1006
Mapulaneng-Matikwana (MP)	102	616
Red Cross (WC)	43	1 352
Mitchell's Plain (WC)	127	768
Tintswalo (MP)	14	103
Total:	1 134	6 583

^{**}SARS-CoV-2 was detected in 21 of 146 (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.

WEEK **25** 2021 REPORTING PERIOD 2 MARCH 2020 TO **27 JUNE 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

Characteristic	Influenza-like illness (ILI), public-sector, n=357 (%)	Pneumonia, n=1 134 (%)
Age group		
0-9	35/357 (10)	73/1134 (6)
10-19	25/357 (7)	7/1134 (1)
20-39	150/357 (42)	194/1134 (17)
40-59	115/357 (32)	421/1134 (37)
60-79	30/357 (8)	403/1134 (36)
≥80	2/357 (1)	36/1134 (3)
Sex-female	208/357 (58)	693/1134 (61)
Province*		
Gauteng	N/A	318/1134 (28)
KwaZulu-Natal	39/357 (11)	244/1134 (22)
Mpumalanga**	30/357 (8)	116/1134 (10)
North West	174/357 (49)	286/1134 (25)
Western Cape	114/357 (32)	170/1134 (15)
Race		
Black	252/357 (70)	942/1128 (84)
Coloured	96/357 (27)	128/1128 (11)
Asian/Indian	1/357 (<1)	34/1128 (3)
Other	8/357 (2)	24/1128 (2)
Presentation		
Fever	346/357 (97)	594/1128 (53)
Cough	354/357 (99)	1089/1128 (97)
Shortness of breath	119/357 (33)	894/1128 (79)
Chest pain	151/357 (42)	464/1128 (41)
Diarrhoea	38/357 (11)	72/1128 (6)

WEEK 25 2021 | REPORTING PERIOD 2 MARCH 2020 TO 27 JUNE 2021

Characteristic	Influenza-like illness (ILI), public-sector, n=357 (%)	Pneumonia, n=1 134 (%)
Underlying conditions		
Hypertension	12/357 (3)	124/1128 (11)
Cardiac	0/357 (0)	8/1128 (1)
Lung disease	0/357 (0)	1/1128 (<1)
Diabetes	7/357 (2)	234/1128 (21)
Cancer	0/357 (0)	7/1128 (1)
Tuberculosis	2/357 (1)	29/1128 (3)
HIV-infection	53/357 (15)	234/1128 (21)
Other ***	9/357 (3)	84/1128 (7)
Management		
Oxygen therapy	2/357 (1)	813/1128 (72)
ICU admission	N/A	31/1128 (3)
Ventilation	N/A	34/1128 (3)
Outcome***		
Died	0/357 (0)	163/1128 (14)

