WEEKLY RESPIRATORY PATHOGENS SURVEILLANCE **REPORT**



SOUTH AFRICA WEEK 29 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

CUMULATIVE DATA FROM

Summary of laboratory

confirmed SARS-CoV-2 cases



HIGHLIGHTS: WEEK 29

- · RSV activity remains below seasonal threshold in both influenza-like illness (ILI) and pneumonia surveillance programmes.
- · Two new cases of influenza from Western Cape were detected in week 29. To date, 57 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 25 July 2021, a total of 2 131 COVID-19 cases were detected from all surveillance programmes. A progressive increase in detection rate has been noted in pneumonia surveillance in this week exceeding peak reporting numbers in the previous two waves. Case numbers are declining in the ILI programme. Of the 1343 hospitalised COVID-19 cases reported with available data on outcome, 203 (15%) died.

WEEK 29 2021 REPORTING PERIOD 4 JANUARY 2021 TO 25 JULY 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 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 ^β	Any person presenting with an acute (≤14 days) respiratory tract infection or other clinical illness compatible with COVID-19β	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 29 2021 REPORTING PERIOD 2 MARCH 2020 TO 25 JULY 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 57 influenza cases detected in surveillance sites in 2021, the majority (45, 79%) were influenza B/Victoria.

ILI programme: In 2021 to date, specimens from 989 patients meeting ILI case definition were received from 4 ILI sites. Influenza was detected in eight (1%) patients, of which six (75%) were influenza B(Victoria) and two (25%) were influenza B (lineage inconclusive). (Figure 1 and Table 1).

Viral Watch programme: In 2021 to date, specimens were received from 151 patients from Viral Watch sites in five of the 8 provinces participating in surveillance. Influenza was detected in nine (6%) patients, of which four (44%) were influenza B (Victoria), four (44%) influenza B (lineage inconclusive) and one (11%) was influenza B (pending lineage results). (Figure 5 and Table 4).

Pneumonia surveillance: Since the beginning of 2021, specimens from 3 308 patients with severe respiratory illness (SRI) were received from the 6 sentinel sites. Influenza was detected in 29 (0.9%) patients, of which one (3%) was influenza A(H3N2), 24 (83%) influenza B (Victoria) and four (14%) were 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 528 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, 989 specimens were tested and RSV was detected in specimens of 70 (7%) patients.

Viral Watch programme: In 2021 to date, 151 specimens were tested and RSV was detected in specimens of six (4%) patients.

Pneumonia surveillance: Since the beginning of 2021, 3 308 specimens were tested and RSV was detected in specimens of 377 (11%) patients.

In addition, RSV was detected in 20 of 528 (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 2 300 patients were tested and SARS-CoV-2 was detected in 430 (19%) patients.

Viral Watch programme: From March 2020 to date, specimens were tested from 430 patients and SARS-CoV-2 was detected in 79 (18%) patients.

Pneumonia surveillance: From March 2020 to date, specimens from 7 324 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 1 495 (20%) patients.

In addition, SARS-CoV-2 was detected in 127 of 741 (17%) specimens from patients who met suspected SARS-CoV-2 case definition but did not meet the pneumonia/ILI surveillance case definitions.

WEEK 29 2021 REPORTING PERIOD 4 JANUARY 2021 TO 25 JULY 2021

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

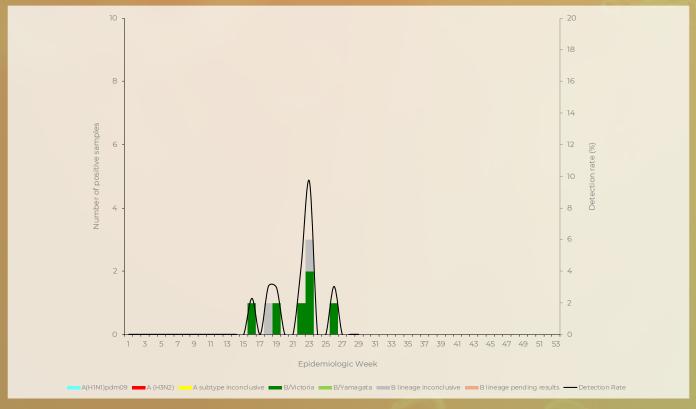


Figure 1. Number of positive samples* by influenza subtype and lineage** and detection rate*** by week

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	142
Eastridge (WC)	0	0	0	0	0	О	О	159
Edendale Gateway (KZ)	0	0	0	3	0	2	0	109
Jouberton (NW)	0	0	О	3	0	О	0	472
Mitchell's Plain (WC)	0	0	0	0	0	0	0	107
Total:	0	0	0	6	0	2	0	989

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 437 (2%), 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 29 2021 REPORTING PERIOD 4 JANUARY 2021 TO 25 JULY 2021

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

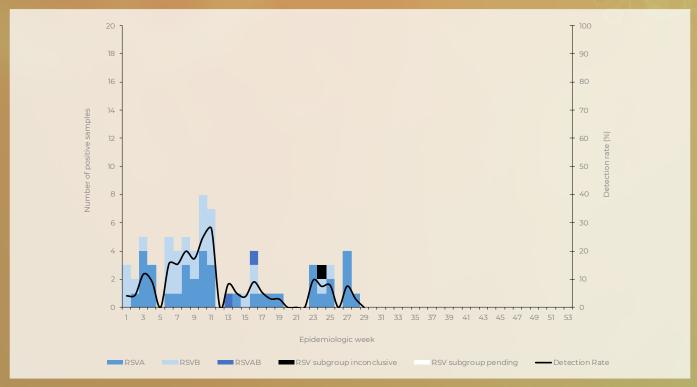


Figure 2. Number of samples testing positive for respiratory syncytial virus** by subgroup and detection rate by week

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	142
Eastridge (WC)	22	0		0	0	159
Edendale Gateway (KZ)		6	0	0	0	109
Jouberton (NW)	2	16	0		0	472
Mitchell's Plain (WC)	2	0	0	0	0	107
Total	38	29	2	1	0	989

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 437 (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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WEEK 29 2021 REPORTING PERIOD 4 JANUARY 2021 TO 25 JULY 2021

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

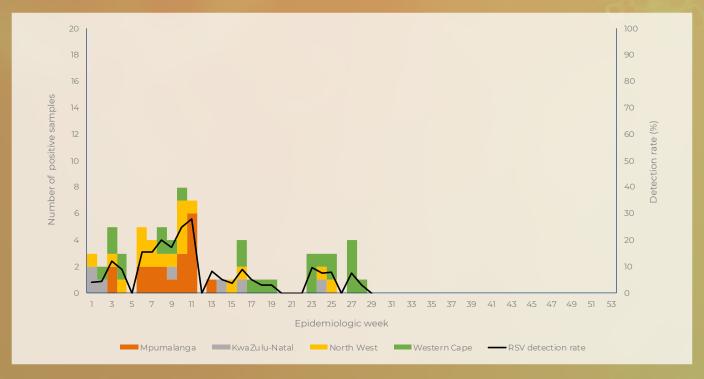


Figure 3. Number of samples testing positive for respiratory syncytial virus* by province and detection rate by week

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PAGE 6

WEEK 29 2021 REPORTING PERIOD 2 MARCH 2020 TO 25 JULY 2021

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

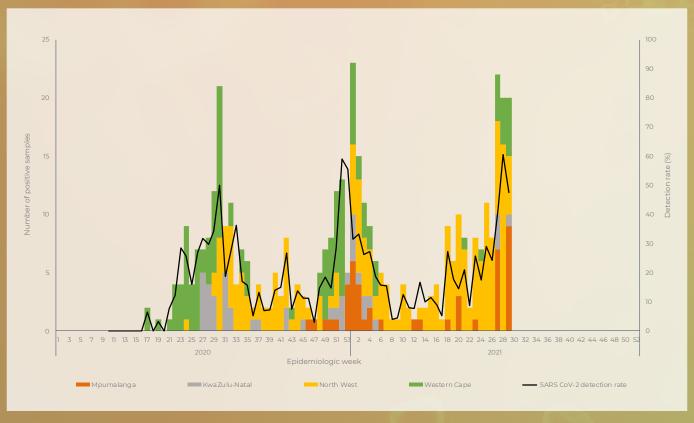


Figure 4. Number of samples testing positive for SARS-CoV-2*\$ by province and detection rate by week

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)	46	172
Eastridge (WC)	51	647
Edendale Gateway (KZ)	43	252
Jouberton (NW)	214	793
Mitchell's Plain (WC)	76	436
Total:	430	2 300

^{**}SARS-CoV-2 was detected in 103 of 576 (18%) 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 29 2021 REPORTING PERIOD 4 JANUARY 2021 TO 25 JULY 2021

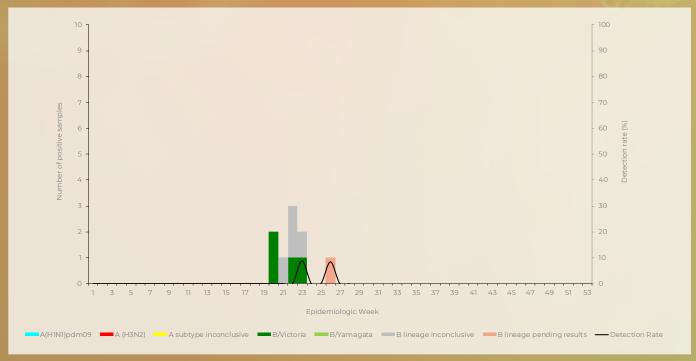


Figure 5. Number of positive samples* by influenza subtype and lineage and detection rate** by week

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	О	0	0	0	О
Gauteng	0	0	О	3	0	4		131
Limpopo	0	0	О	О	0	О	О	О
Mpumalanga	0	0	0	О	0	0	0	
North West	0	0	0	О	0	0	О	2
Northern Cape	0	0	0	О	0	0	О	0
Western Cape	0	0	0	О	0	0	0	16
Total:	0	0	0	4	0	4	1	151

WEEK 29 2021 REPORTING PERIOD 4 JANUARY 2021 TO 25 JULY 2021

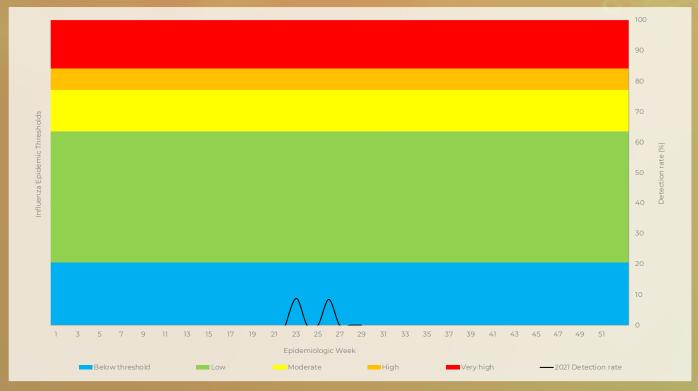


Figure 6. ILI surveillance (Viral Watch) percentage influenza detections and epidemic thresholds*

WEEK 29 2021 REPORTING PERIOD 4 JANUARY 2021 TO 25 JULY 2021

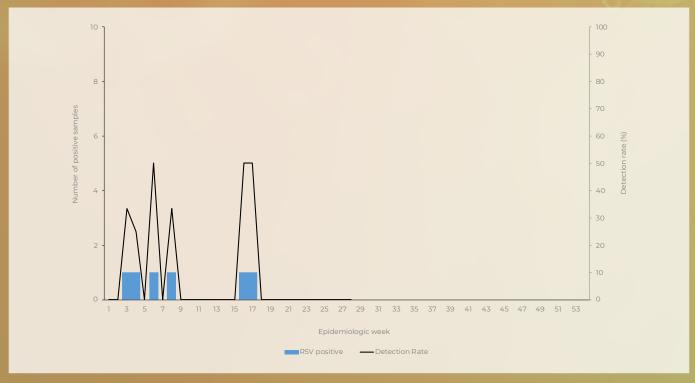


Figure 7. Number of samples testing positive for RSV*, and detection rate by week

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	131
Limpopo	0	0
Mpumalanga	0	
North West	0	2
Northern Cape	0	0
Western Cape	2	16
Total:	6	151

WEEK 29 2021 REPORTING PERIOD 2 MARCH 2020 TO 25 JULY 2021

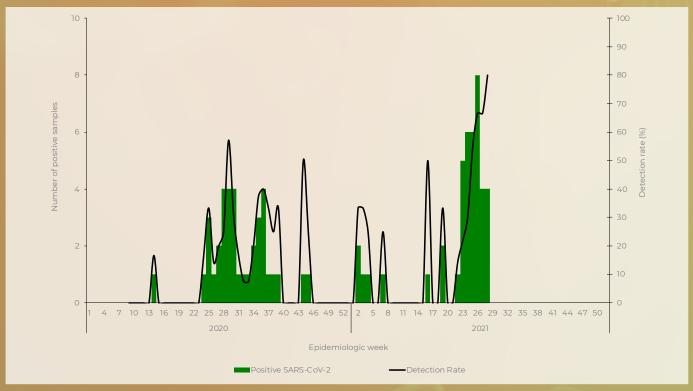


Figure 8. Number of samples testing positive for SARS-CoV-2*, and detection rate by week

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		5
Free State		14
Gauteng	64	291
Limpopo	0	2
Mpumalanga		6
North West	0	2
Northern Cape	0	2
Western Cape	12	108
Total:	79	430

WEEK 29 2021 REPORTING PERIOD 4 JANUARY 2021 TO 25 JULY 2021

NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

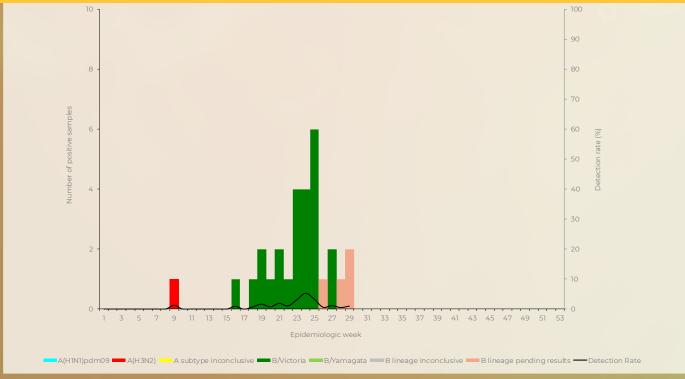


Figure 9. Number of positive samples* by influenza subtype and lineage** and detection rate*** by week

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	416
Helen Joseph-Rahima Moosa (GP)	0	0	О	12	0	0		918
Klerksdorp-Tshepong (NW)	0	0	О	3	0	0	0	534
Mapulaneng- Matikwana (MP)	0	0	О		0	0	0	368
Red Cross (WC)	0	0	0		0	0	2	458
Mitchell's Plain (WC)	0		0	0	0	0	0	468
Tintswalo (MP)	0	О	0	0	0	0	1	146
Total:	0	1	0	24	0	0	4	3 308

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 91 (1%) 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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PAGE **12**

WEEK 29 2021 REPORTING PERIOD 4 JANUARY 2021 TO 25 JULY 2021

NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

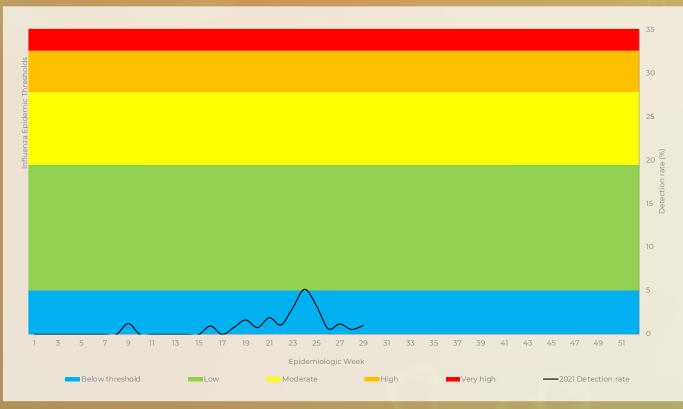


Figure 10. National syndromic surveillance for pneumonia percentage influenza detections and epidemic thresholds*

WEEK 29 2021 REPORTING PERIOD 4 JANUARY 2021 TO 25 JULY 2021

NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

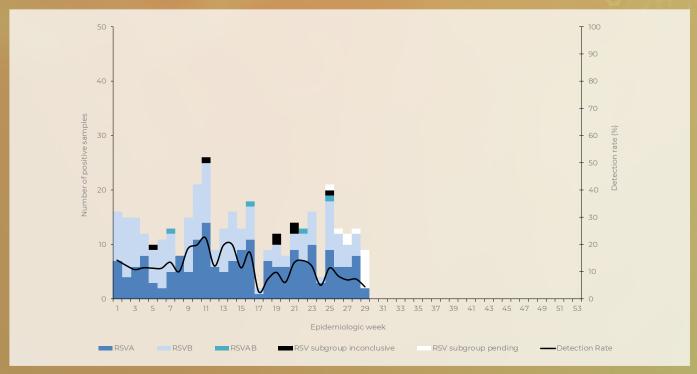


Figure 11. Number of samples testing positive for respiratory syncytial virus* by subgroup and detection rate by week

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	29	0	0	0	416
Helen Joseph-Rahima Moosa (GP)	36	42	О	0	0	918
Klerksdorp-Tshepong (NW)	8	44	0	2	0	534
Mapulaneng-Matikwana (MP)	20	7		0	0	368
Red Cross (WC)	77	28	2	4	12	458
Mitchell's Plain (WC)	35	10			О	468
Tintswalo (MP)	10	3	0	0	0	146
Total:	191	163	4	7	12	3 308

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 91 (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 29 2021 REPORTING PERIOD 4 JANUARY 2021 TO 25 JULY 2021

NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA



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

WEEK 29 2021 REPORTING PERIOD 2 MARCH 2020 TO 25 JULY 2021

NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

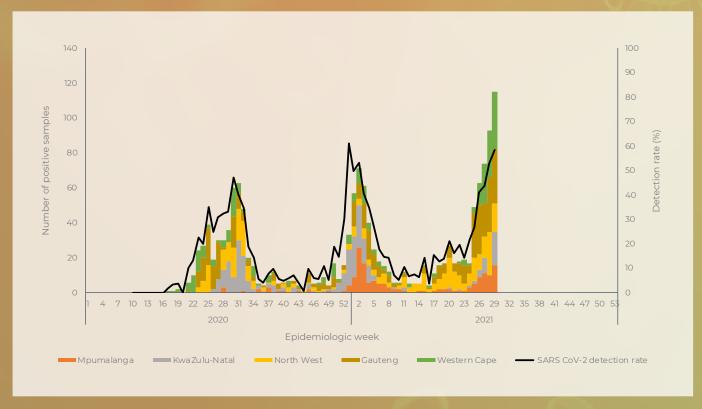


Figure 13. Number oof samples testing positive for SARS-CoV-2* by province and detection rate by week

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)	281	1 265
Helen Joseph-Rahima Moosa (GP)	428	1 761
Klerksdorp-Tshepong (NW)	350	1 127
Mapulaneng-Matikwana (MP)	133	670
Red Cross (WC)	49	1 418
Mitchell's Plain (WC)	218	937
Tintswalo (MP)	36	146
Total:	1 495	7 324

**SARS-CoV-2 was detected in 24 of 165 (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 29 2021 REPORTING PERIOD 2 MARCH 2020 TO 25 JULY 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=533 (%)	Pneumonia, n=1 519 (%)
Age group		
0-9	41/533 (8)	97/1519 (6)
10-19	32/533 (6)	10/1519 (1)
20-39	240/533 (45)	260/1519 (17)
40-59	175/533 (33)	559/1519 (37)
60-79	43/533 (8)	535/1519 (35)
≥80	2/533 (<1)	58/1519 (4)
Sex-female	315/533 (59)	904/1519 (60)
Province*		
Gauteng	N/A	429/1519 (28)
KwaZulu-Natal	65/533 (12)	284/1519 (19)
Mpumalanga**	62/533 (12)	189/1519 (12)
North West	275/533 (52)	350/1519 (23)
Western Cape	131/533 (24)	267/1519 (18)
Race		
Black	383/525 (73)	1197/1497 (80)
Coloured	117/525 (22)	214/1497 (14)
Asian/Indian	4/525 (<1)	40/1497 (3)
White	19/525 (4)	25/1497 (2)
Other	2/525 (<1)	21/1497 (1)
Presentation		
Fever	428/525 (82)	742/1497 (50)
Cough	509/525 (97)	1438/1497 (96)
Shortness of breath	179/525 (34)	1176/1497 (79)
Chest pain	216/525 (41)	593/1497 (40)
Diarrhoea	47/525 (9)	88/1497 (6)

WEEK 29 2021 REPORTING PERIOD 2 MARCH 2020 TO 25 JULY 2021

Characteristic	Influenza-like illness (ILI), public-sector, n=533 (%)	Pneumonia, n=1 519 (%)
Underlying conditions		
Hypertension	17/525 (3)	247/1497 (17)
Cardiac	2/525 (<1)	40/1497 (3)
Lung disease	0/525 (0)	2/1497 (<1)
Diabetes	14/525 (3)	304/1497 (20)
Cancer	1/525 (<1)	8/1497 (1)
Tuberculosis	7/525 (1)	37/1497 (2)
HIV-infection	88/525 (17)	297/1497 (20)
Other ***	12/525 (2)	90/1497 (6)
Management		
Oxygen therapy	7/525 (1)	1 018/1497 (68)
ICU admission	N/A	35/1497 (2)
Ventilation	N/A	40/1497 (3)
Outcome***		
Died	0/525 (0)	203/1343 (15)

