WEEKLY RESPIRATORY PATHOGENS SURVEILLANCE REPORT



SOUTH AFRICA WEEK **21** 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
Summary of laboratory	17-18

CUMULATIVE DATA FROM

confirmed SARS-CoV-2 cases



HIGHLIGHTS: WEEK 21

- RSV activity in pneumonia surveillance has declined in the past 5 weeks and RSV season has not started yet.
- · Three new cases of influenza, one each from Gauteng, North West and KwaZulu-Natal were detected in this current reporting week (week 21) in addition to 13 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 30 May 2021, a total of 1 416 COVID-19 cases were detected from all surveillance programmes. A decline in number of new positive cases in week21 has been noted in both influenza-like illness and pneumonia surveillance programmes compared to previous week. Of the 1033 hospitalised COVID-19 cases reported with available data on outcome, 147 (14%) died.

WEEK 21 2021 REPORTING PERIOD 4 JANUARY 2021 TO 30 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 **21** 2021 REPORTING PERIOD 2 MARCH 2020 TO **30 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). Of the 16 influenza cases detected in surveillance sites in 2021, majority (13, 81%) were influenza B/Victoria.

ILI programme: In 2021 to date, specimens from 696 patients meeting ILI case definition were received from 4 ILI sites. Influenza B (Victoria) was detected in three (0.4%) patients. (Figure 1 and Table 1).

Viral Watch programme: During the same period, specimens were received from 67 patients from Viral Watch sites in three of the 8 provinces participating in surveillance. Influenza B (Victoria) was detected in one (1.5%) patient. (Figure 5 and Table 4).

Pneumonia surveillance: Since the beginning of 2021, specimens from 2 118 patients with severe respiratory illness (SRI) were received from the 6 sentinel sites. Influenza was detected in eight (0.4%) patients, of which one (12.5%) was influenza A(H3N2), five (62.5%) influenza B (Victoria) and two (25%) were influenza B (pending lineage results). (Figure 9 and Table 7).

In addition, influenza B (Victoria) was detected in four of 374 (1.1%) 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, 696 specimens were tested and RSV was detected in specimens of 56 (8%) patients.

Viral Watch programme: During the same period, 67 specimens were tested and RSV was detected in specimens of six (9%) patients.

Pneumonia surveillance: Since the beginning of 2021, 2 118 specimens were tested and RSV was detected in specimens of 275 (13%) patients.

In addition, RSV was detected in 19 of 374 (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 2 007 patients were tested and SARS-CoV-2 was detected in 333 (17%) patients.

Viral Watch programme: From March 2020 to date, specimens were tested from 346 patients and SARS-CoV-2 was detected in 45 (13%) patients.

Pneumonia surveillance: From March 2020 to date. specimens from 6 097 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 1 038 (17%) patients.

In addition, SARS-CoV-2 was detected in 82 of 566 (14%) specimens from patients who met suspected SARS-CoV-2 case definition but did not meet the pneumonia/ILI surveillance case definitions.

WEEK 21 2021 REPORTING PERIOD 4 JANUARY 2021 TO 30 MAY 2021

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

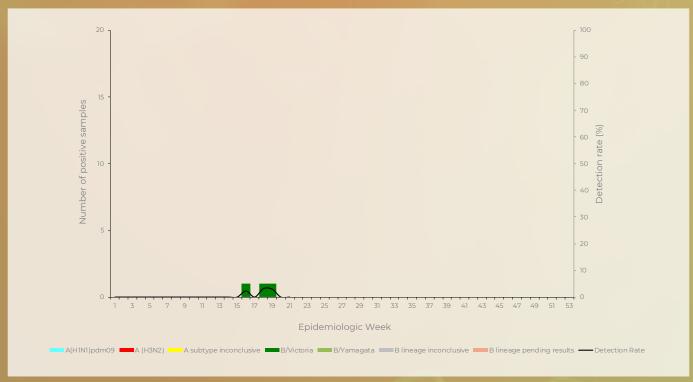


Figure 1. Number of positive samples* by influenza subtype and lineage** and detection rate*** by week

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	Total samples
Agincourt (MP)	0	О	О	0	O	О	106
Eastridge (WC)	0	О	О	0	О	0	123
Edendale Gateway (KZ)	0	0	0	2	O	0	86
Jouberton (NW)	0	0	0		О	0	297
Mitchell's Plain (WC)	0	0	0	0	0	0	84
Total:	0	0	0	3	0	0	696

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

WEEK 21 2021 REPORTING PERIOD 4 JANUARY 2021 TO 30 MAY 2021

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

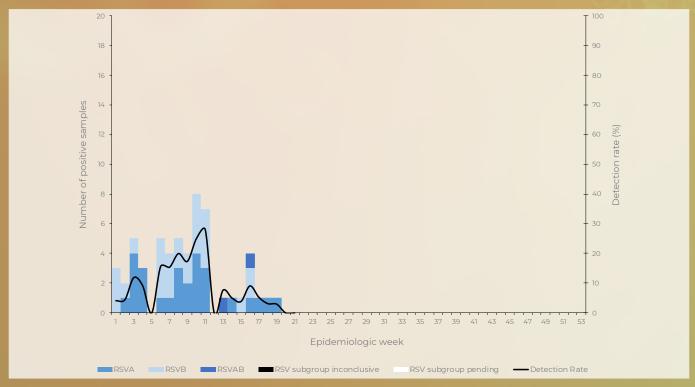


Figure 2. Number of samples testing positive for respiratory syncytial virus** by subgroup and detection rate by week

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	106
Eastridge (WC)	11	0		0	0	123
Edendale Gateway (KZ)		5	0	0	0	86
Jouberton (NW)	2	15	0	0	0	297
Mitchell's Plain (WC)	2	0	0	0	0	84
Total	27	27	2	0	0	696

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 14 of 296 (4.7%) 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 21 2021 REPORTING PERIOD 4 JANUARY 2021 TO 30 MAY 2021

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

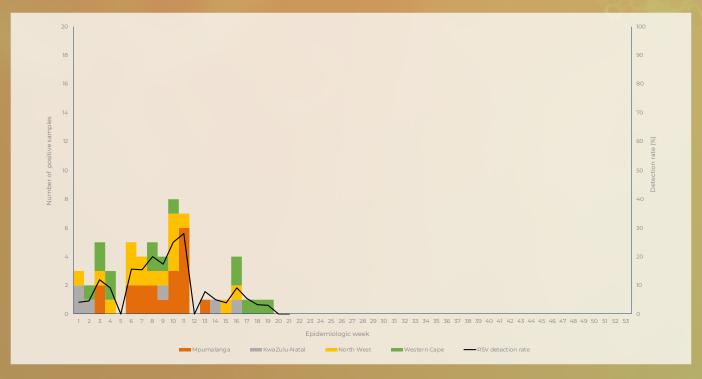


Figure 3. Number of samples testing positive for respiratory syncytial virus* by province and detection rate by week

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TOLL-FREE NUMBER 0800 029 999

PAGE 6

WEEK **21** 2021 REPORTING PERIOD 2 MARCH 2020 TO **30 MAY 2021**

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

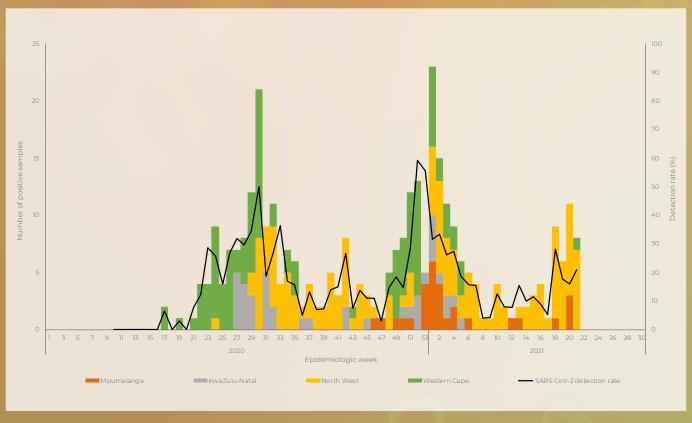


Figure 4. Number of samples testing positive for SARS-CoV-2*\$ by province and detection rate by week

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)	29	136
Eastridge (WC)	47	611
Edendale Gateway (KZ)	39	227
Jouberton (NW)	152	620
Mitchell's Plain (WC)	66	413
Total:	333	2 007

WEEK 21 2021 REPORTING PERIOD 4 JANUARY 2021 TO 30 MAY 2021

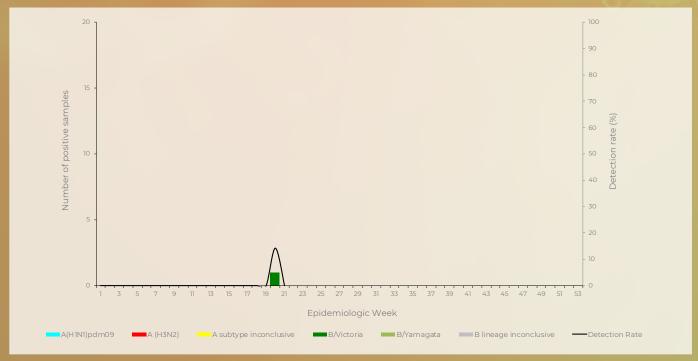


Figure 5. Number of positive samples* by influenza subtype and lineage and detection rate** by week

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	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	56
Limpopo	0	0	О	0	0	0	0
Mpumalanga	0	0	О	0	0	0	
North West	0	0	0	0	0	0	
Northern Cape	0	0	О	0	0	0	0
Western Cape	0	0	0	0	0	0	9
Total:	0	0	0	1	0	0	67

WEEK 21 2021 | REPORTING PERIOD 4 JANUARY 2021 TO 30 MAY 2021

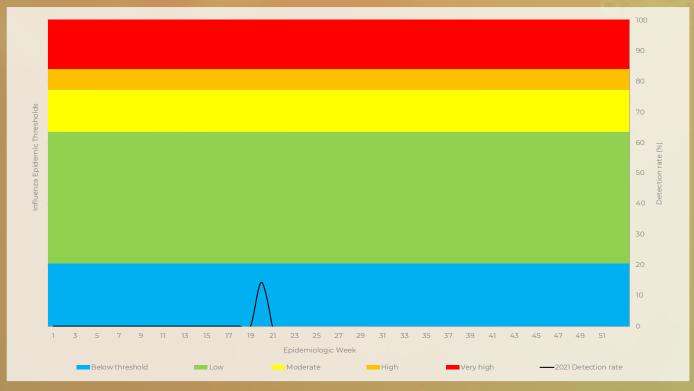


Figure 6. ILI surveillance (Viral Watch) percentage influenza detections and epidemic thresholds*

WEEK **21** 2021 REPORTING PERIOD 4 JANUARY 2021 TO **30 MAY 2021**

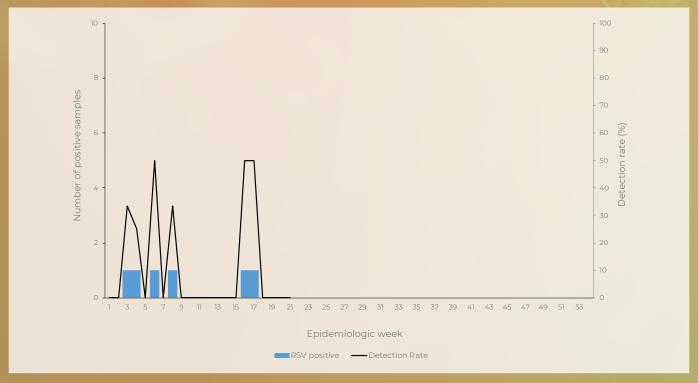


Figure 7. Number of samples testing positive for RSV*, and detection rate by week

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	0
Free State	0	0
Gauteng	4	56
Limpopo	0	0
Mpumalanga	0	
North West	0	
Northern Cape	0	0
Western Cape	2	9
Total:	6	67

WEEK 21 2021

REPORTING PERIOD 2 MARCH 2020 TO 30 MAY 2021

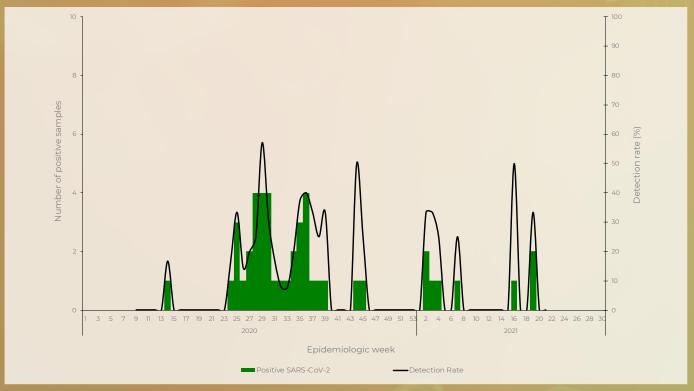


Figure 8. Number of samples testing positive for SARS-CoV-2*, and detection rate by week

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	216
Limpopo	0	2
Mpumalanga		6
North West	0	
Northern Cape	0	2
Western Cape	10	101
Total:	45	346

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

WEEK 21 2021 REPORTING PERIOD 4 JANUARY 2021 TO 30 MAY 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	2	0	0		286
Helen Joseph-Rahima Moosa (GP)	0	0	0	3	0	0		609
Klerksdorp-Tshepong (NW)	0	0	Ο	0	0	0	0	332
Mapulaneng- Matikwana (MP)	0	0	0	0	0	0	0	275
Red Cross (WC)	0	0	0	0	0	0	0	300
Mitchell's Plain (WC)	0		0	0	0	0	0	231
Tintswalo (MP)	0	О	0	О	0	0	0	85
Total:	0	1	0	5	0	0	2	2 118

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 78 (1.3%) 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 21 2021 | REPORTING PERIOD 4 JANUARY 2021 TO 30 MAY 2021

NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA



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

WEEK 21 2021 | REPORTING PERIOD 4 JANUARY 2021 TO 30 MAY 2021

NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

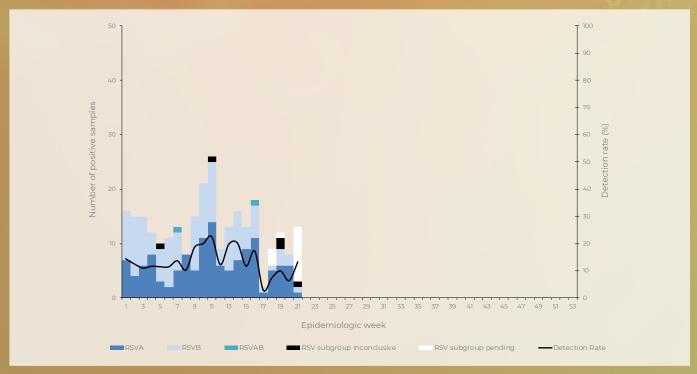


Figure 11. Number of samples testing positive for respiratory syncytial virus* by subgroup and detection rate by week

Table 8: Cumulative number of respiratory syncytial virus** subgroups identified and total number of samples tested by hospital

Hamilton (Burndana)	DC) (A	DCVD	DCV/AD	DC) (l	DCMh	Total committee
Hospital (Province)	RSVA	RSVB	RSVAB	RSV subgroup inconclusive	RSV subgroup pending*	Total samples
Edendale (KZ)	4	23	0	0	3	286
Helen Joseph-Rahima Moosa (GP)	33	40	О	0		609
Klerksdorp-Tshepong (NW)	8	40	0	2	О	332
Mapulaneng-Matikwana (MP)	20	6		0		275
Red Cross (WC)	40	9	О	2	8	300
Mitchell's Plain (WC)	15	3				231
Tintswalo (MP)	10	3	0	0	0	85
Total:	130	124	2	5	14	2 118

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 78 (6.4%) 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.

WEEK 21 2021 REPORTING PERIOD 4 JANUARY 2021 TO 30 MAY 2021

NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

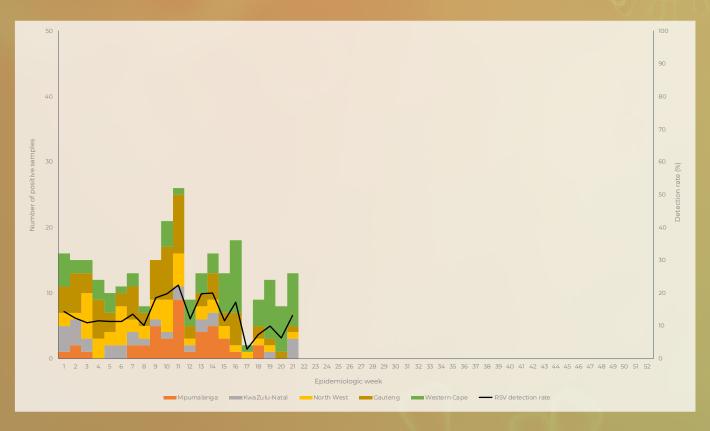


Figure 12. Number of samples testing positive for respiratory syncytial virus* by province and detection rate by week

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WEEK **21** 2021 REPORTING PERIOD 2 MARCH 2020 TO **30 MAY 2021**

NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

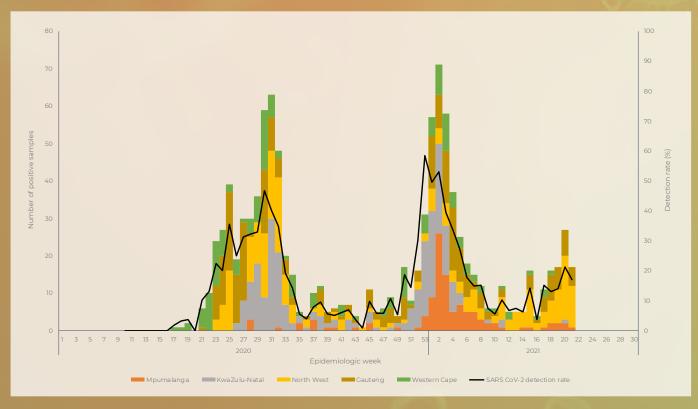


Figure 13. Number oof samples testing positive for SARS-CoV-2* by province and detection rate by week

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)	241	1 108
Helen Joseph-Rahima Moosa (GP)	269	1 446
Klerksdorp-Tshepong (NW)	255	925
Mapulaneng-Matikwana (MP)	99	577
Red Cross (WC)	43	1 258
Mitchell's Plain (WC)	120	698
Tintswalo (MP)	n	85
Total:	1 038	6 097

^{**}SARS-CoV-2 was detected in 21 of 140 (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 **21** 2021 REPORTING PERIOD 2 MARCH 2020 TO **30 MAY 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=333 (%)	Pneumonia, n=1 038 (%)
Age group		
0-9	35/333 (10)	70/1038 (7)
10-19	25/333 (8)	7/1038 (1)
20-39	143/333 (43)	179/1038 (17)
40-59	103/333 (31)	374/1038 (36)
60-79	25/333 (7)	372/1038 (36)
≥80	2/333 (1)	36/1038 (3)
Sex-female	194/333 (58)	640/1038 (62)
Province*		
Gauteng	N/A	269/1038 (26)
KwaZulu-Natal	39/333 (12)	241/1038 (23)
Mpumalanga**	29/333 (9)	110/1038 (11)
North West	152/333 (45)	255/1038 (24)
Western Cape	113/333 (34)	163/1038 (16)
Race		
Black	234/333 (70)	874/1033 (85)
Coloured	93/333 (28)	117/1033 (11)
Asian/Indian	1/333 (<1)	24/1033 (2)
Other	5/333 (1)	18/1033 (2)
Presentation		
Fever	321/333 (96)	554/1033 (54)
Cough	330/333 (99)	997/1033 (97)
Shortness of breath	107/333 (32)	819/1033 (79)
Chest pain	141/333 (42)	437/1033 (42)
Diarrhoea	34/333 (10)	67/1033 (6)

WEEK **21** 2021 REPORTING PERIOD 2 MARCH 2020 TO **30 MAY 2021**

Characteristic	Influenza-like illness (ILI), public-sector, n=333 (%)	Pneumonia, n=1 038 (%)
Underlying conditions		
Hypertension	12/333 (4)	124/1033 (12)
Cardiac	0/333 (0)	8/1033 (1)
Lung disease	0/333 (0)	1/1033 (<1)
Diabetes	7/333 (2)	219/1033 (21)
Cancer	0/333 (0)	6/1033 (1)
Tuberculosis	1/333 (<1)	28/1033 (3)
HIV-infection	49/333 (15)	215/1033 (21)
Other ***	8/333 (2)	82/1033 (8)
Management		
Oxygen therapy	2/333 (1)	750/1033 (73)
ICU admission	N/A	25/1033 (2)
Ventilation	N/A	28/1033 (3)
Outcome***		
Died	0/333 (0)	147/1033 (14)

