MONTHLY RESPIRATORY PATHOGENS SURVEILLANCE **REPORT**



SOUTH AFRICA WEEK 5 2021

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HIGHLIGHTS: WEEK 5

- · RSV activity continues to be seen in all surveillance sites and 2021 RSV season has not started yet.
- · Influenza and B. pertussis cases have not been detected in 2021.
- From 2 March 2020 to 07 February 2021, a total of 1111 COVID-19 cases were detected from all surveillance programmes. A considerable decline in number of COVID-19 cases detected has been noted from week 3 (week starting 18 January 2021) in pneumonia surveillance and from week 2 (week starting 11 Jan 2021) in ILI surveillance programme. Of the 799 hospitalised COVID-19 cases reported with available data on outcome, 84 (11%) died.

CUMULATIVE DATA FROM

confirmed SARS-CoV-2 cases



FEBRUARY 2021

WEEK 5 2021 REPORTING PERIOD 4 JANUARY 2021 TO 7 FEBRUARY 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 coronavirus 2

REPORTING PERIOD 4 JANUARY 2021 TO 7 FEBRUARY 2021

COMMENTS

Influenza

There are no influenza cases detected in 2021.

ILI programme: In 2021 to date, specimens from 208 patients were received from 4 ILI sites. Influenza was not detected. (Figure 1 and Table 1).

Viral Watch programme: During the same period, specimens were received from 13 patients from Viral Watch sites in 8 provinces. Influenza was not detected. (Figure 5 and Table 4).

Pneumonia surveillance: Since the beginning of 2021, specimens from 545 patients with severe respiratory illness (SRI) were received from the 6 sentinel sites. Influenza was not detected. (Figure 9 and Table 8).

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, 208 specimens were tested and RSV was detected in specimens of 13 (6%) patients.

Viral Watch programme: During the same period, 13 specimens were tested and RSV was detected in specimens of two (15%) patient.

Pneumonia surveillance: Since the beginning of 2021, 545 specimens were tested and RSV was detected in specimens of 65 (12%) patients.

Bordetella pertussis

ILI programme: From 1 January 2021 to date, combined nasopharyngeal and oropharyngeal specimens were tested from 208 patients and B. pertussis was not detected.

Pneumonia surveillance: During the same period, combined nasopharyngeal and oropharyngeal specimens were tested from 545 patients and B. pertussis was not detected.

In addition, B. pertussis was not detected in 106 specimens from patients who met suspected B. pertussis case definition but did not meet the pneumonia/ILI surveillance case definition.

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 1531 patients were tested and SARS-CoV-2 was detected in 268 (17%) patients.

Viral Watch programme: From March 2020 to date, specimens were tested from 292 patients and SARS-CoV-2 was detected in 41 (14%) patients.

Pneumonia surveillance: From March 2020 to date. specimens from 4415 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 802 (18%) patients.

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

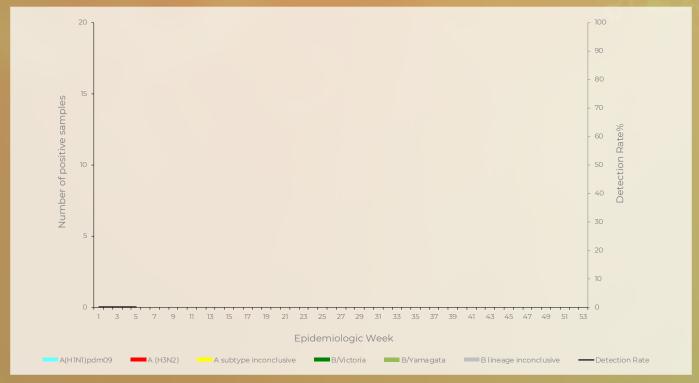


Figure 1. Number of positive samples* by influenza subtype and lineage and detection rate** by week

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	27
Eastridge (WC)	0	0	О	0	0	0	48
Edendale Gateway (KZ)	0	0	0	0	0	0	25
Jouberton (NW)	0	0	0	0	0	0	63
Mitchell's Plain (WC)	0	0	0	0	0	0	45
Total:	0	0	0	0	0	0	208

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

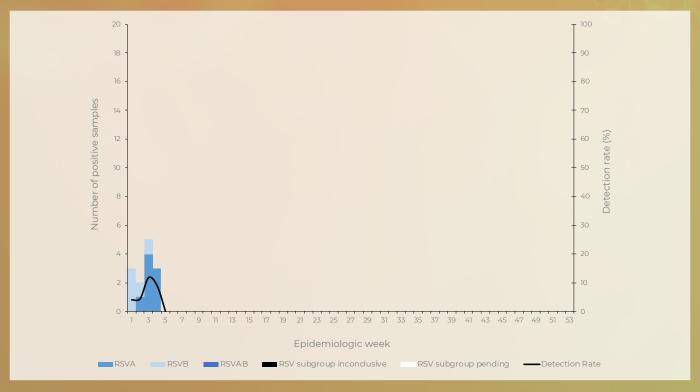


Figure 2. Number of samples testing positive for respiratory syncytial virus by subgroup and detection rate by week

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

Clinic (Province)	RSVA	RSVB	RSVAB	RSV subgroup inconclusive	RSV subgroup pending*	Total samples
Agincourt (MP)	2	0	0	0	0	27
Eastridge (WC)	4	0	0	0	0	48
Edendale Gateway (KZ)	0	3	0	0	0	25
Jouberton (NW)		2	0	0	0	63
Mitchell's Plain (WC)	1	0	0	0	0	45
Total	8	5	0	0	0	208

RSV AB: Both RSV A and B subgroup identified

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

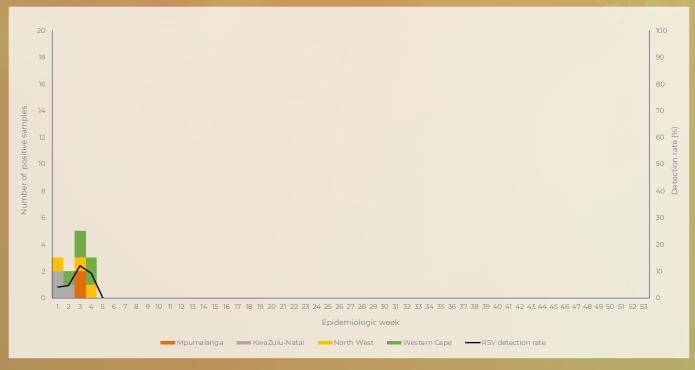


Figure 3. Number of samples testing positive for respiratory syncytial virus by province and detection rate by week



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

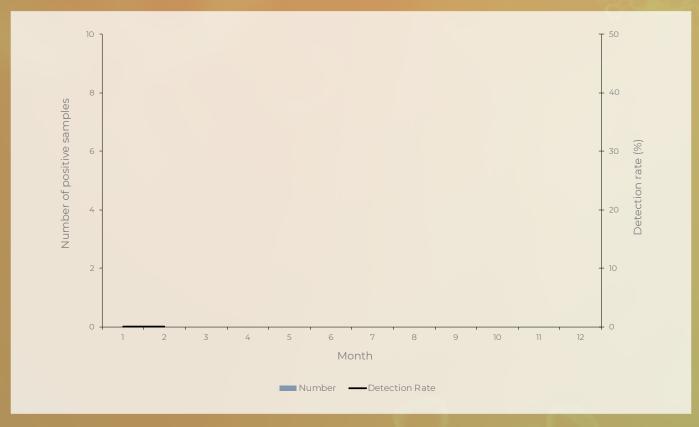


Figure 4. Number of samples testing positive for *B. pertussis* and detection rate by month

Table 3. Cumulative number of B. pertussis identified and total number of samples** tested by province

Clinic (Province)	B. pertussis Positive**	Total samples tested
Agincourt (MP)	0	27
Eastridge (WC)	0	48
Edendale Gateway (KZ)	0	25
Jouberton (NW)	0	63
Mitchell's Plain (WC)	0	45
Total:	0	208

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

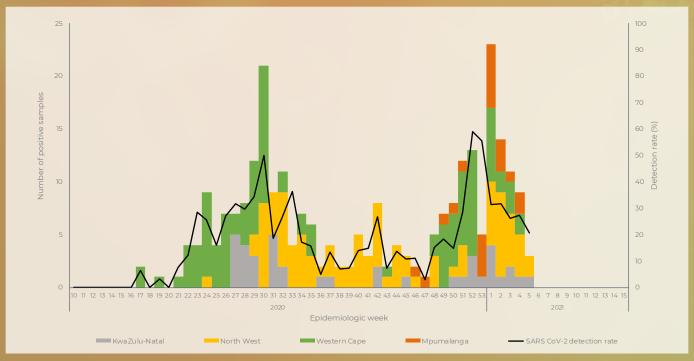


Figure 5. Number of samples testing positive for SARS-CoV-2* by province and detection rate by week

Table 4. 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)	21	57
Eastridge (WC)	47	536
Edendale Gateway (KZ)	39	166
Jouberton (NW)	96	393
Mitchell's Plain (WC)	65	379
Total:	268	1531

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

^{*}Specimens from patients with influenza-like illnesses at 5 sentinel sites in 4 provinces

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

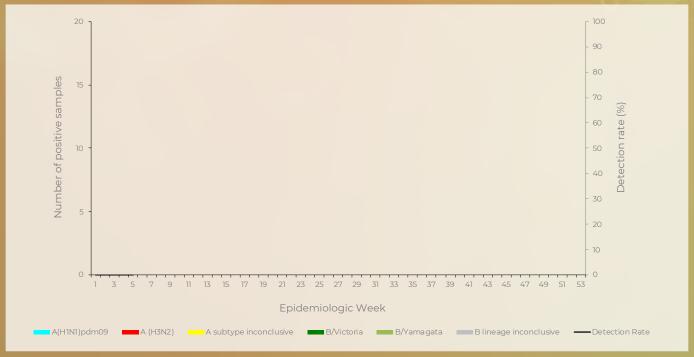


Figure 6. Number of positive samples* by influenza subtype and lineage and detection rate** by week

Table 5. 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	О	0	0	О	0	0
Gauteng	0	О	О	0	0	0	12
Limpopo	0	0	О	0	0	0	0
Mpumalanga	0	0	О	0	0	0	
North West	0	0	О	0	0	0	0
Northern Cape	0	0	О	0	0	0	0
Western Cape	0	0	0	0	0	0	0
Total:	0	0	0	0	0	0	13

From 04 January 2021 to date, no patients were tested for influenza at the time of entry into South Africa following travel abroad.

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

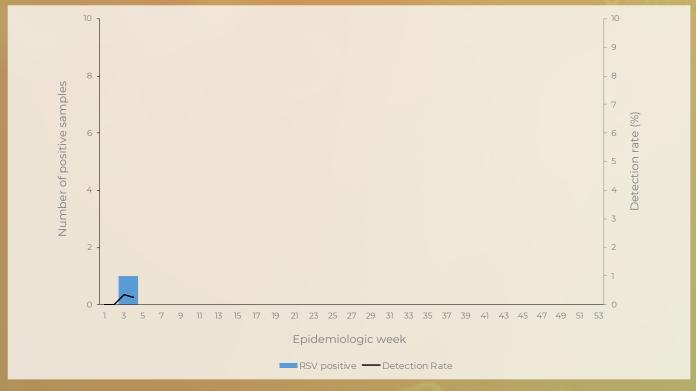


Figure 7. Number of samples testing positive for RSV*, and detection rate by week

Table 6. Cumulative number of RSV positive cases identified and total number of samples tested by province

Clinic (Province)	SARS-CoV-2 positive	Total samples tested
Eastern Cape	0	0
Free State	0	0
Gauteng	2	12
Limpopo	0	0
Mpumalanga	0	
North West	0	0
Northern Cape	0	0
Western Cape	0	0
Total:	2	13

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

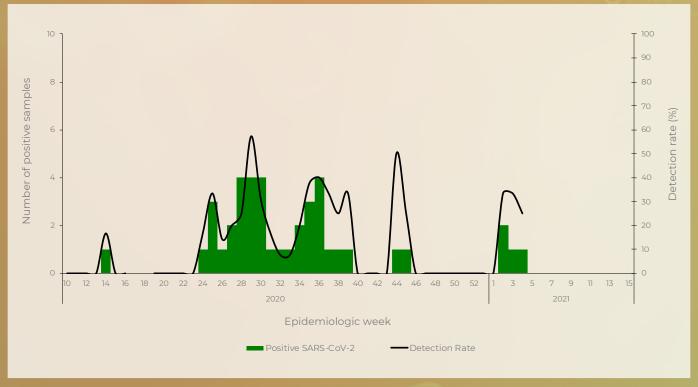


Figure 8. Number of samples testing positive for SARS-CoV-2*, and detection rate by week

Table 7. Cumulative number of SARS-CoV-2 identified and total number of samples tested by province

Clinic (Province)	SARS-CoV-2 positive	Total samples tested
Eastern Cape	1-1	4
Free State		14
Gauteng	29	172
Limpopo	0	2
Mpumalanga		6
North West	0	0
Northern Cape	0	2
Western Cape	9	92
Total:	41	292

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

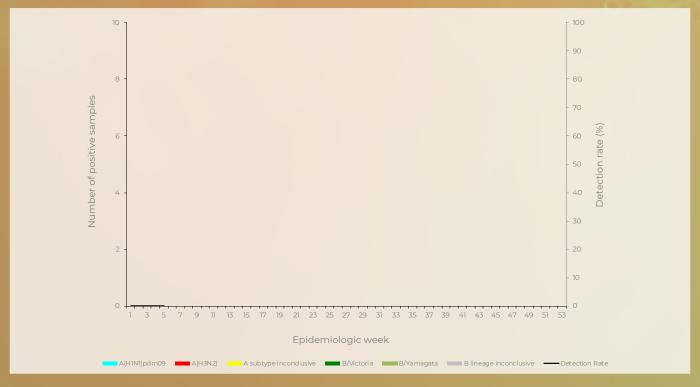


Figure 9. Number of positive samples* by influenza subtype and lineage and detection rate** by week

Table 8. 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	102
Helen Joseph-Rahima Moosa (GP)	0	0	0	0	0	0	146
Klerksdorp-Tshepong (NW)	0	0	0	0	0	0	52
Mapulaneng-Matikwana (MP)	0	0	0	0	0	0	109
Red Cross (WC)	0	0	О	0	0	0	78
Mitchell's Plain (WC)	0	0	О	0	0	0	58
Total:	0	0	0	0	0	0	545

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

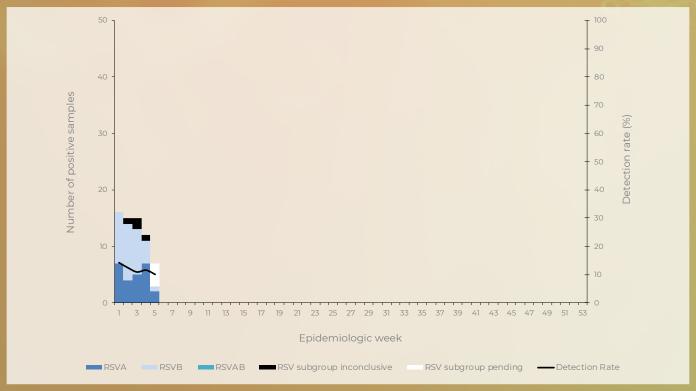


Figure 10. Number of samples testing positive for respiratory syncytial virus by subgroup and detection rate by week

Table 9. 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)	1	8	0	1	1	102
Helen Joseph-Rahima Moosa (GP)	10	9	0		2	146
Klerksdorp-Tshepong (NW)	0	11	0	2	0	52
Mapulaneng-Matikwana (MP)		3	0	0	0	109
Red Cross (WC)	12		0	0		78
Mitchell's Plain (WC)	3 1	0	0	0	0	58
Total:	25	32	0	4	4	545

GP: Gauteng; KZ: KwaZulu-Natal; NW: North West; MP: Mpumalanga; WC: Western Cape

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

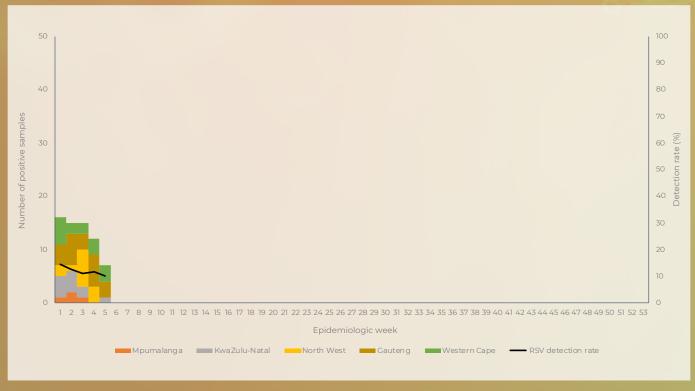


Figure 11. Number of samples testing positive for respiratory syncytial virus by province and detection rate by week

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

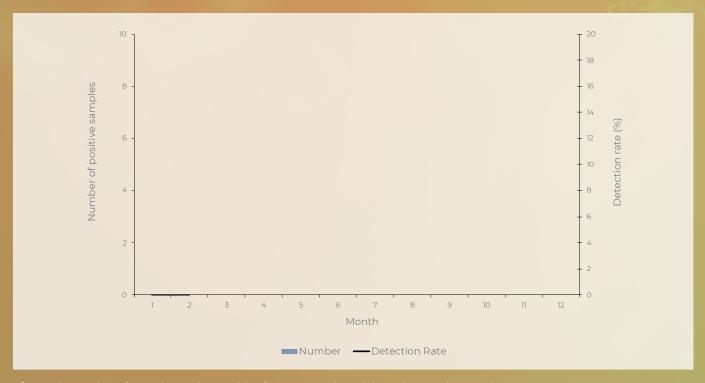


Figure 12. Number of samples testing positive for *B. pertussis* and detection rate by month

Table 10: Cumulative number of B. pertussis identified and total number of samples** tested by hospital and province

Hospital (Province)	B. pertussis Positive**	Total samples
Edendale (KZ)	0	102
Helen Joseph-Rahima Moosa (GP)	0	146
Klerksdorp-Tshepong (NW)	0	52
Mapulaneng-Matikwana (MP)	0	109
Red Cross (WC)	O	78
Mitchell's Plain (WC)	0	57
Total:	0	545

GP: Gauteng; KZ: KwaZulu-Natal; NW: North West; MP: Mpumalanga; WC: Western Cape

**32 cases met the suspected pertussis case definition but did not meet Pneumonia Surveillance case definition. These are not included in the table and epidemiologic

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

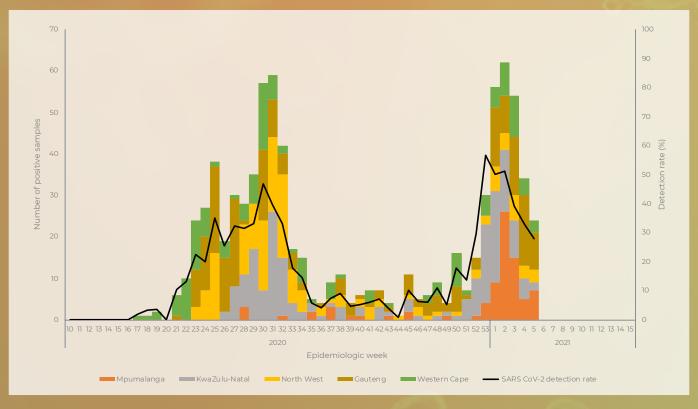


Figure 13. Number of samples testing positive for SARS-CoV-2*, and detection rate by week

Table 11. Cumulative number of identified SARS-CoV-2 and total number of samples tested by hospital

Hospital (Province)	SARS-CoV-2 positive	Total samples tested
Hospital (Province)	SARS-COV-2 positive	Total samples tested
Edendale (KZ)	194	802
Helen Joseph-Rahima Moosa (GP)	218	984
Klerksdorp-Tshepong (NW)	163	656
Mapulaneng-Matikwana (MP)	82	411
Red Cross (WC)	42	1035
Mitchell's Plain (WC)	103	527
Total:	802	4415

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SUMMARY OF LABORATORY CONFIRMED SARS-COV-2 CASES

Table 11. Characteristics of laboratory-confirmed cases of COVID-19, enrolled in influenza-like illness (ILI) and pneumonia surveillance programmes, South Africa, 2 March 2020- 07 February 2021

Characteristic	Influenza-like illness (ILI), public-sector, n=268 (%)	Pneumonia, n=802 (%)
Age group		
0-9	32/268 (12)	61/802 (8)
10-19	19/268 (7)	5/802 (<1)
20-39	120/268 (45)	145/802 (18)
40-59	74/268 (28)	296/802 (37)
60-79	21/268 (7)	273/802 (34)
≥80	1/268 (<1)	22/802 (2)
Sex-female	155/268 (58)	486/802 (61)
Province*		
Gauteng	N/A	218/802 (27)
KwaZulu-Natal	39/268 (14)	194/802 (24)
Mpumalanga**	21/268 (8)	82/802 (10)
North West	96/268 (36)	163/802 (20)
Western Cape	112/268 (42)	145/802 (18)
Race		
Black	176/268 (66)	667/799 (83)
Coloured	89/268 (33)	95/799 (12)
Asian/Indian	0/268 (0)	21/799 (3)
Other	3/268 (1)	16/799 (2)
Presentation		
Fever	260/268 (97)	446/799 (56)
Cough	267/268 (99)	777/799 (97)
Shortness of breath	78/268 (29)	634/799 (79)
Chest pain	102/268 (39)	353/799 (44)
Diarrhoea	23/268 (9)	52/799 (7)

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Characteristic	Influenza-like illness (ILI), public-sector, n=268 (%)	Pneumonia, n=802 (%)
Underlying conditions		
Hypertension	12/268 (4)	108/799 (14)
Cardiac	0/268 (0)	8/799 (1)
Lung disease	0/268 (0)	1/799 (<1)
Diabetes	5/268 (2)	174/799 (22)
Cancer	0/268 (0)	5/799 (1)
Tuberculosis	1/268 (<1)	23/799 (3)
HIV-infection	34/268 (13)	155/799 (19)
Other ***	8/268 (3)	79/799 (10)
Management		
Oxygen therapy	1/268 (<1)	512/799 (64)
ICU admission	N/A	20/799 (3)
Ventilation	N/A	27/799 (3)
Outcome***		
Died	0/268 (0)	84/799 (11)

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