

# WEEKLY RESPIRATORY PATHOGENS SURVEILLANCE REPORT

 NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 2 2020

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## HIGHLIGHTS: WEEK 2

- RSV activity continues to be seen in all surveillance sites and 2021 RSV season has not started yet.

- No influenza cases have been detected in 2021

- From 2 March 2020 to 17 January 2021, a total of 963 COVID-19 cases were detected from all surveillance programmes of which 155 were cases detected in 2021 to date. Of the 661 hospitalised COVID-19 cases reported with available data on outcome, 65 (10%) died.

## CUMULATIVE DATA FROM



# INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

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## PROGRAMME DESCRIPTIONS

Programme	Influenza-like illness (ILI)	Viral Watch	National syndromic surveillance for pneumonia
<b>Start year</b>	2012	1984	2009
<b>Provinces*</b>	KZ NW WC** MP***	EC FS GP LP MP NC NW WC	GP KZ MP NW WC
<b>Type of site</b>	Primary health care clinics	General practitioners	Public hospitals
<b>Case definition</b>	An acute respiratory illness with a temperature ( $\geq 38^{\circ}\text{C}$ ) and cough, & onset $\leq 10$ days	An acute respiratory illness with a temperature ( $\geq 38^{\circ}\text{C}$ ) and cough, & onset $\leq 10$ days	Acute (symptom onset $\leq 10$ days) or chronic (symptom onset $> 10$ ) lower respiratory tract infection
<b>Specimens collected</b>	Oropharyngeal & nasopharyngeal swabs	Throat and/or nasal swabs or Nasopharyngeal swabs	Oropharyngeal & nasopharyngeal swabs
<b>Main pathogens tested****</b>	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

# INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

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## COMMENTS

### Influenza

There are no influenza cases detected in 2021.

**ILI programme:** In 2021 to date, specimens from 117 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 six 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 227 patients with severe respiratory illness (SRI) were received from the 6 sentinel sites. Influenza was not detected. (Figure 9 and Table 7).

### Respiratory syncytial virus

In 2021 to date, RSV transmission has been reported from ILI and pneumonia surveillance programmes, activity remains below threshold.

**ILI programme:** In 2021 to date, 117 specimens were tested and RSV was detected in specimens of 5 (4%) patients.

**Viral Watch programme:** During the same period, six specimens were tested and RSV was not detected.

**Pneumonia surveillance:** Since the beginning of 2021, 227 specimens were tested and RSV was detected in specimens of 30 (13%) patients.

### 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 1429 patients were tested and SARS-CoV-2 was detected in 242 (17%) patients.

**Viral Watch programme:** From March 2020 to date, specimens were tested from 285 patients and SARS-CoV-2 was detected in 39 (14%) patients.

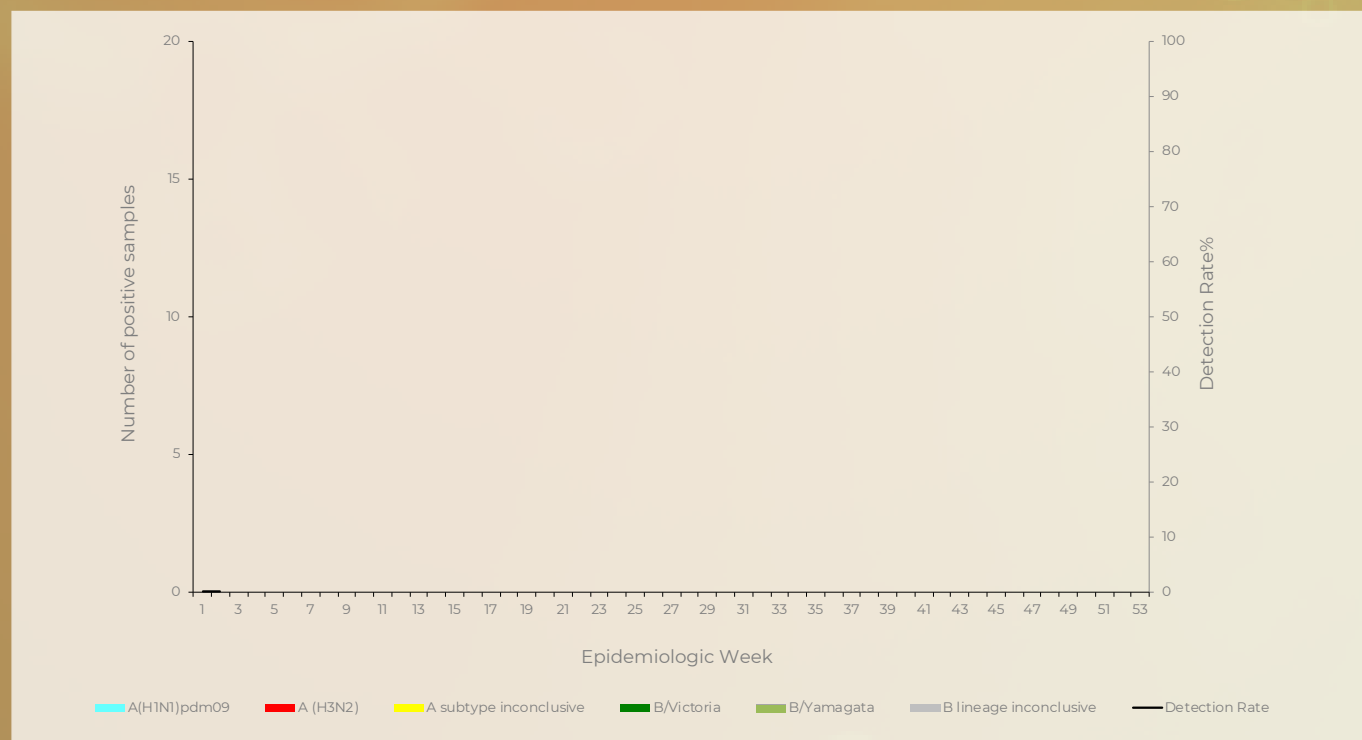
**Pneumonia surveillance:** From March 2020 to date, specimens from 4046 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 682 (17%) patients.

# INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

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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

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

\*\*Only reported for weeks with >10 specimens submitted

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

**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	15
Eastridge (WC)	0	0	0	0	0	0	26
Edendale Gateway (KZ)	0	0	0	0	0	0	15
Jouberton (NW)	0	0	0	0	0	0	37
Mitchell's Plain (WC)	0	0	0	0	0	0	24
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>117</b>

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

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

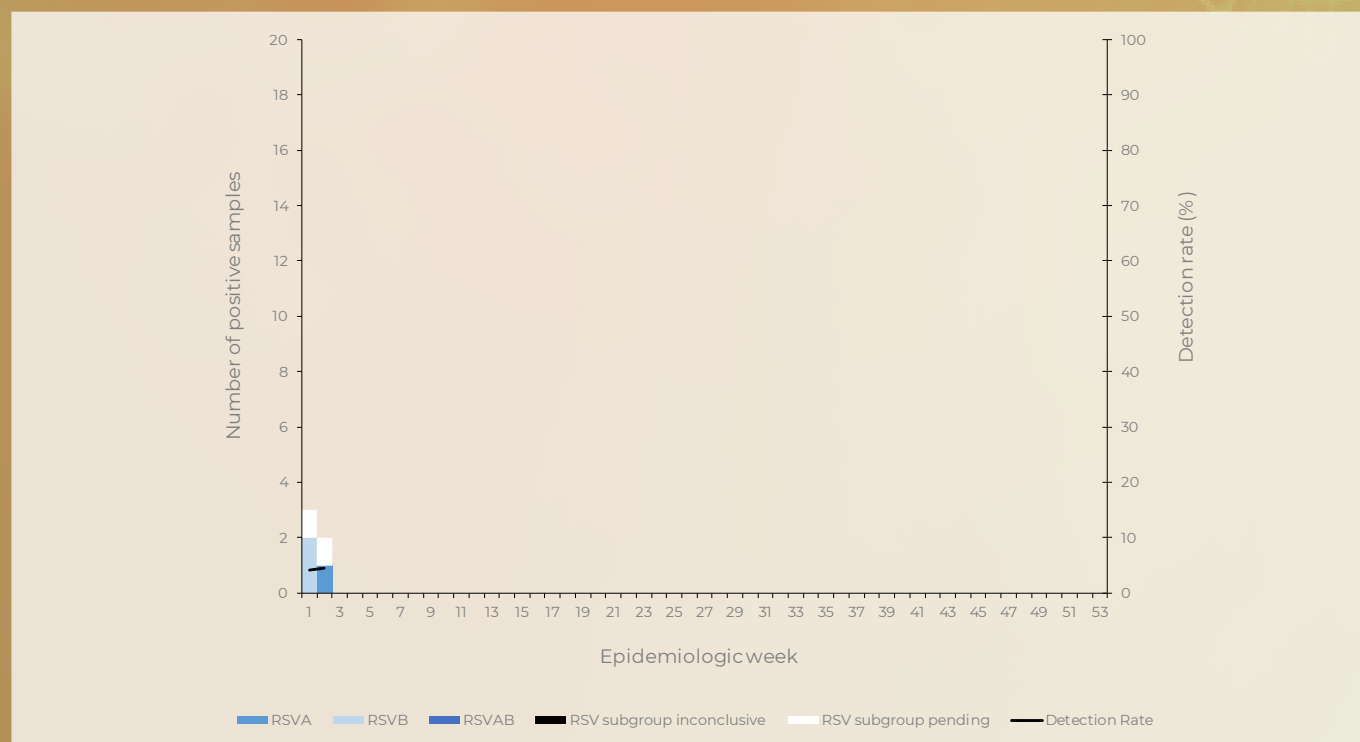


# INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

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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

Inconclusive: insufficient viral load in sample and unable to characterise further  
RSV AB: Both RSV A and B subgroup identified

**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)	0	0	0	0	0	15
Eastridge (WC)	1	0	0	0	0	26
Edendale Gateway (KZ)	0	1	0	0	2	15
Jouberton (NW)	0	1	0	0	0	37
Mitchell's Plain (WC)	0	0	0	0	0	24
<b>Total</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>117</b>

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

# INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

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



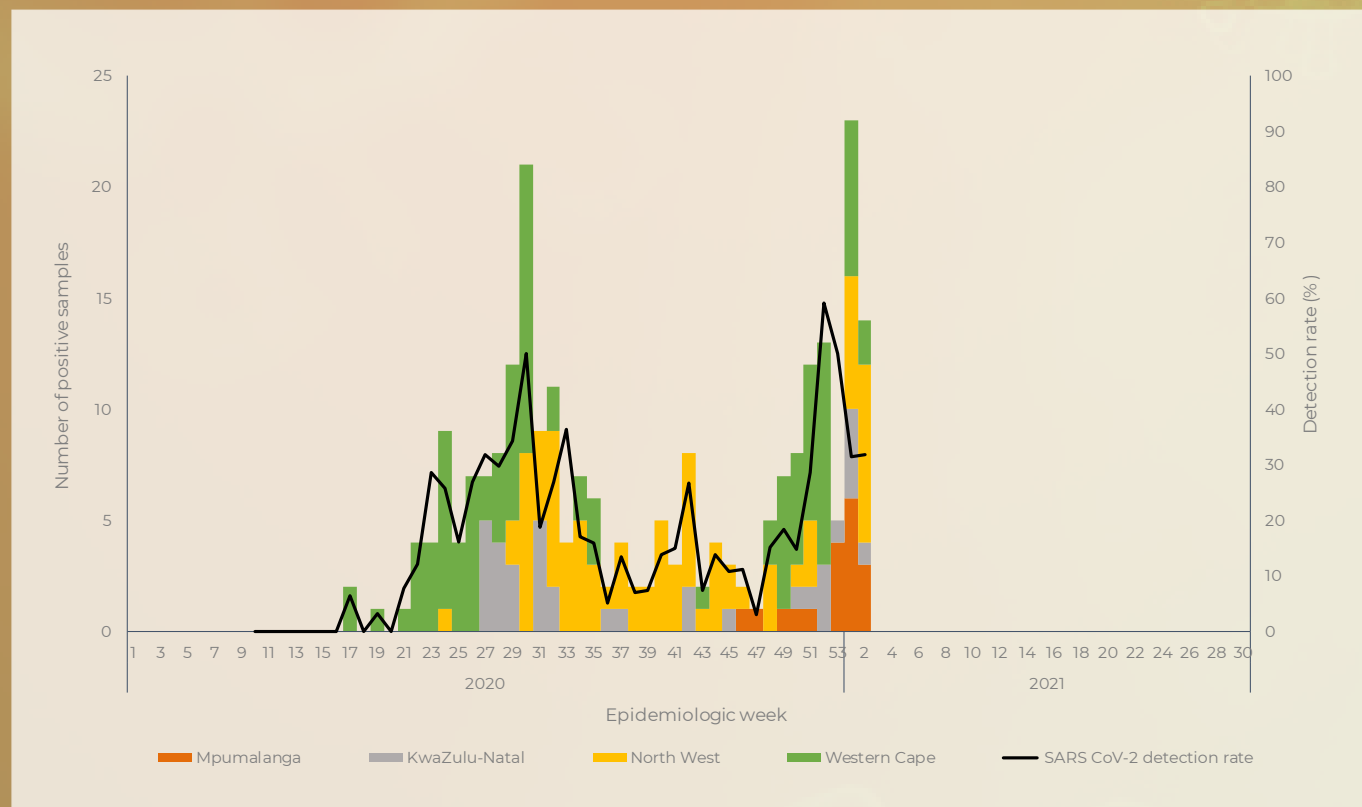
Figure 3. Number of samples testing positive for respiratory syncytial virus by province and detection rate by week

# INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

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## 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

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

**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)	18	45
Eastridge (WC)	43	516
Edendale Gateway (KZ)	35	156
Jouberton (NW)	85	360
Mitchell's Plain (WC)	61	352
<b>Total:</b>	<b>242</b>	<b>1429</b>

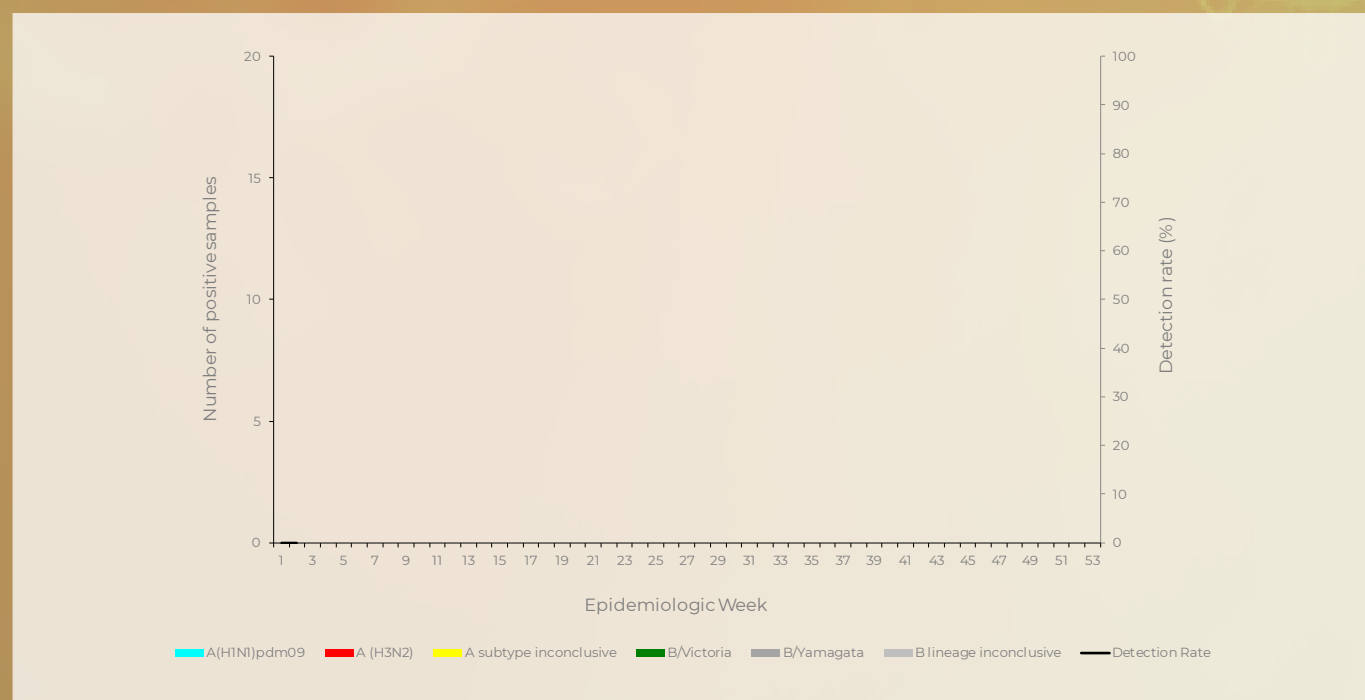
KZ: KwaZulu-Natal; NW: North West; WCP: Western Cape; MP: Mpumalanga (started enrolling on the 10th November 2020)

# INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

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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

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

\*\* Only reported for weeks with >10 specimens submitted.

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

**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	0	0	0	0	0
Gauteng	0	0	0	0	0	0	5
Limpopo	0	0	0	0	0	0	0
Mpumalanga	0	0	0	0	0	0	1
North West	0	0	0	0	0	0	0
Northern Cape	0	0	0	0	0	0	0
Western Cape	0	0	0	0	0	0	0
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>

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

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

Patients known to have acquired influenza abroad are not included in the table or epidemiological curve.



# INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

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## INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

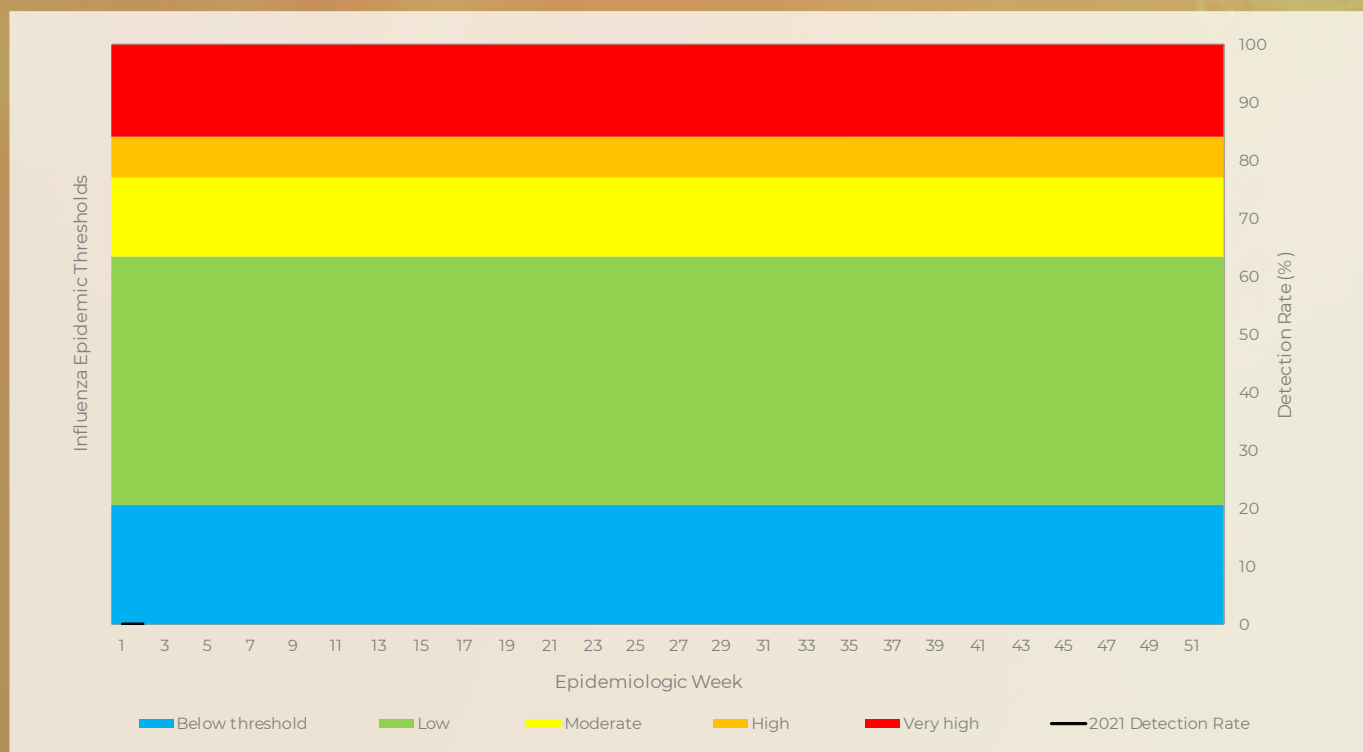


Figure 6. ILI surveillance (Viral Watch) percentage influenza detections and epidemic thresholds\*

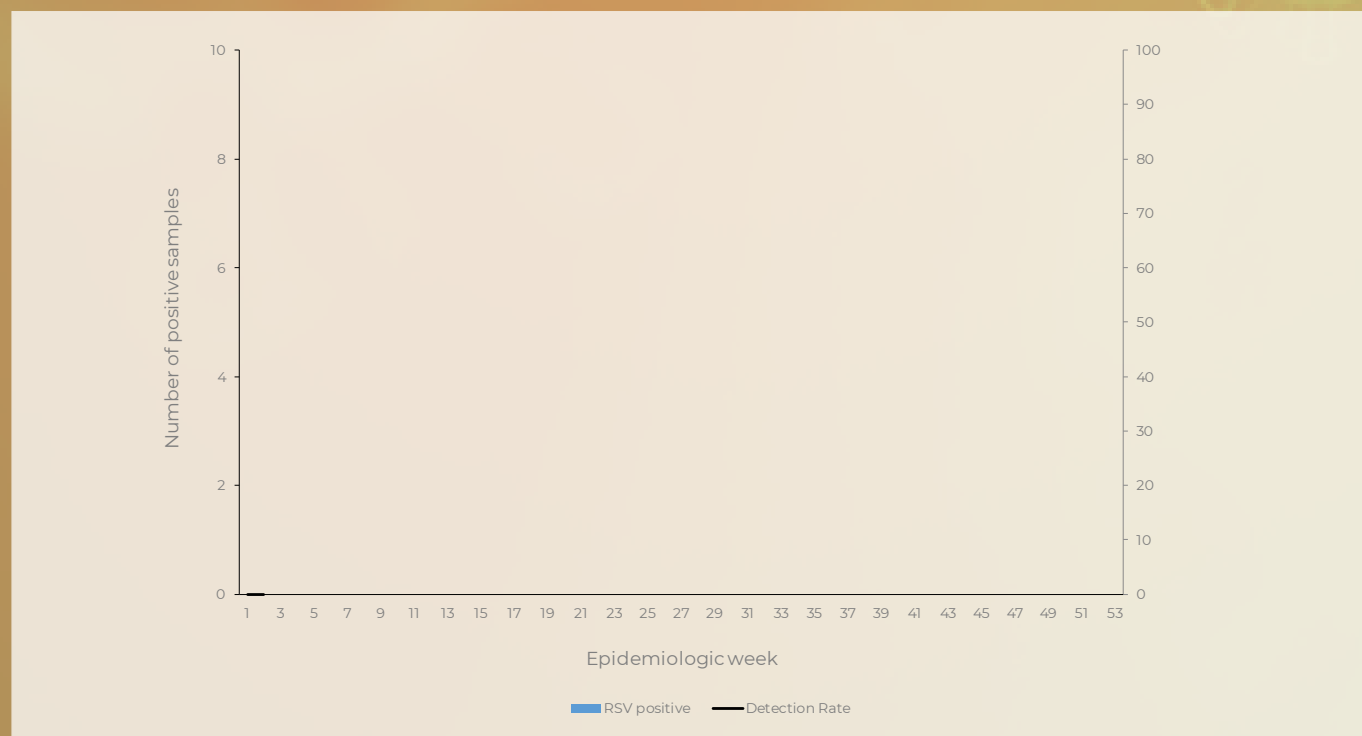
\*Thresholds based on 2010-2019 data

# INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

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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

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

**Table 5.** Cumulative number of RSV positive cases identified and total number of samples tested by province

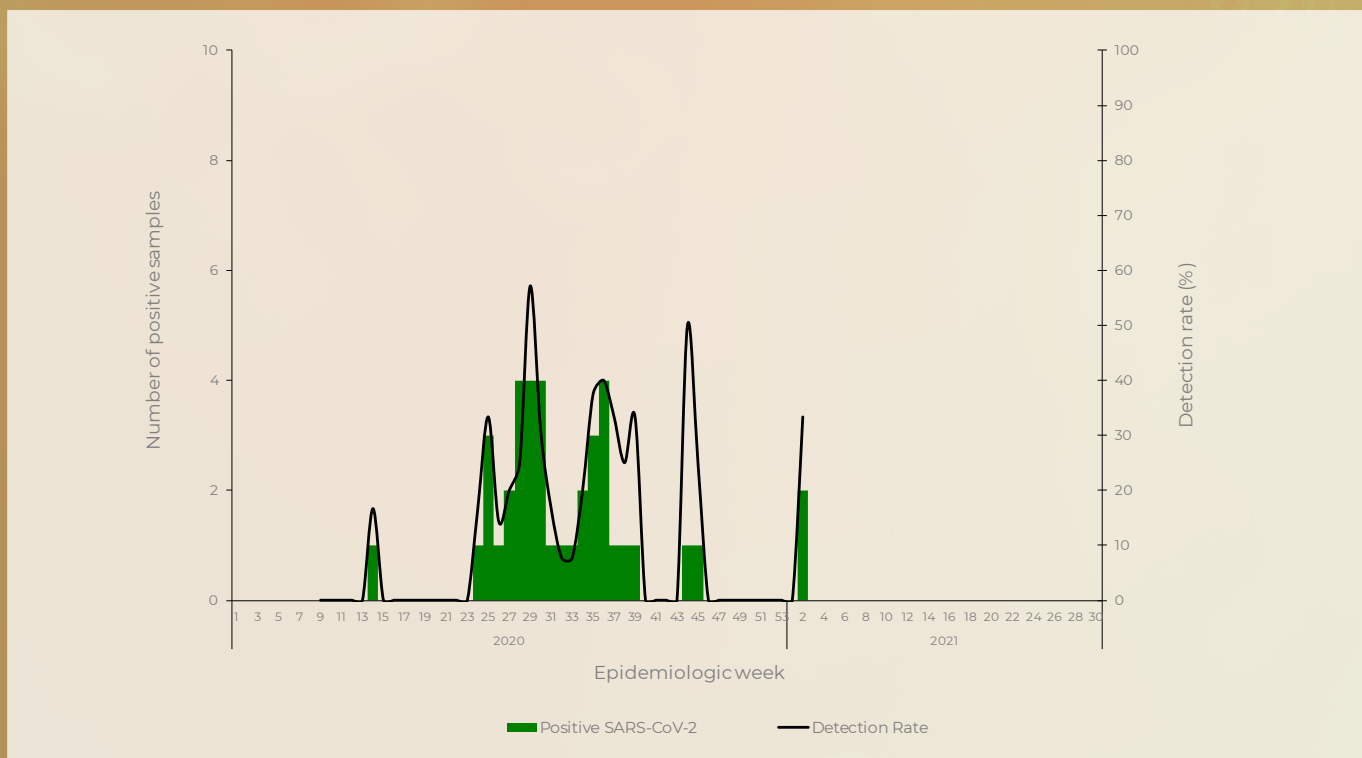
Province	SARS-CoV-2 positive	Total samples tested
Eastern Cape	0	0
Free State	0	0
Gauteng	0	5
Limpopo	0	0
Mpumalanga	0	1
North West	0	0
Northern Cape	0	0
Western Cape	0	0
<b>Total:</b>	<b>0</b>	<b>6</b>

# INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

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## NFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH



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

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

**Table 6.** Cumulative number of SARS-CoV-2 identified and total number of samples tested by province

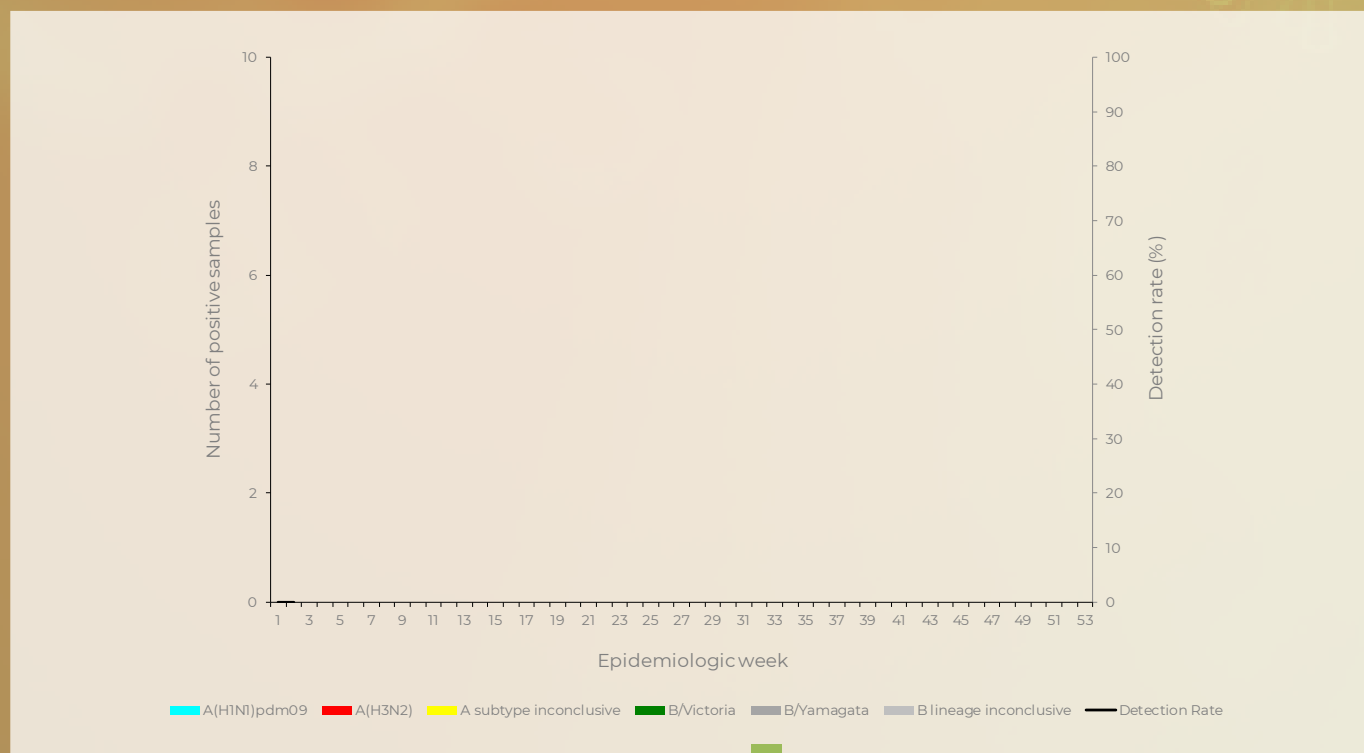
Hospital (Province)	SARS-CoV-2 positive	Total samples
Eastern Cape	1	4
Free State	1	14
Gauteng	27	165
Limpopo	0	2
Mpumalanga	1	6
North West	0	0
Northern Cape	0	2
Western Cape	9	92
<b>Total:</b>	<b>39</b>	<b>285</b>

# INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

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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

\*Specimens from patients hospitalised with pneumonia at 6 sentinel sites in 5 provinces

\*\*Only reported for weeks with >10 specimens submitted

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

**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	Total samples
Edendale (KZ)	0	0	0	0	0	0	57
Helen Joseph-Rahima Moosa (GP)	0	0	0	0	0	0	46
Klerksdorp-Tshepong (NW)	0	0	0	0	0	0	23
Mapulaneng-Matikwana (MP)	0	0	0	0	0	0	53
Red Cross (WC)	0	0	0	0	0	0	29
Mitchell's Plain (WC)	0	0	0	0	0	0	19
<b>Total:</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>227</b>

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

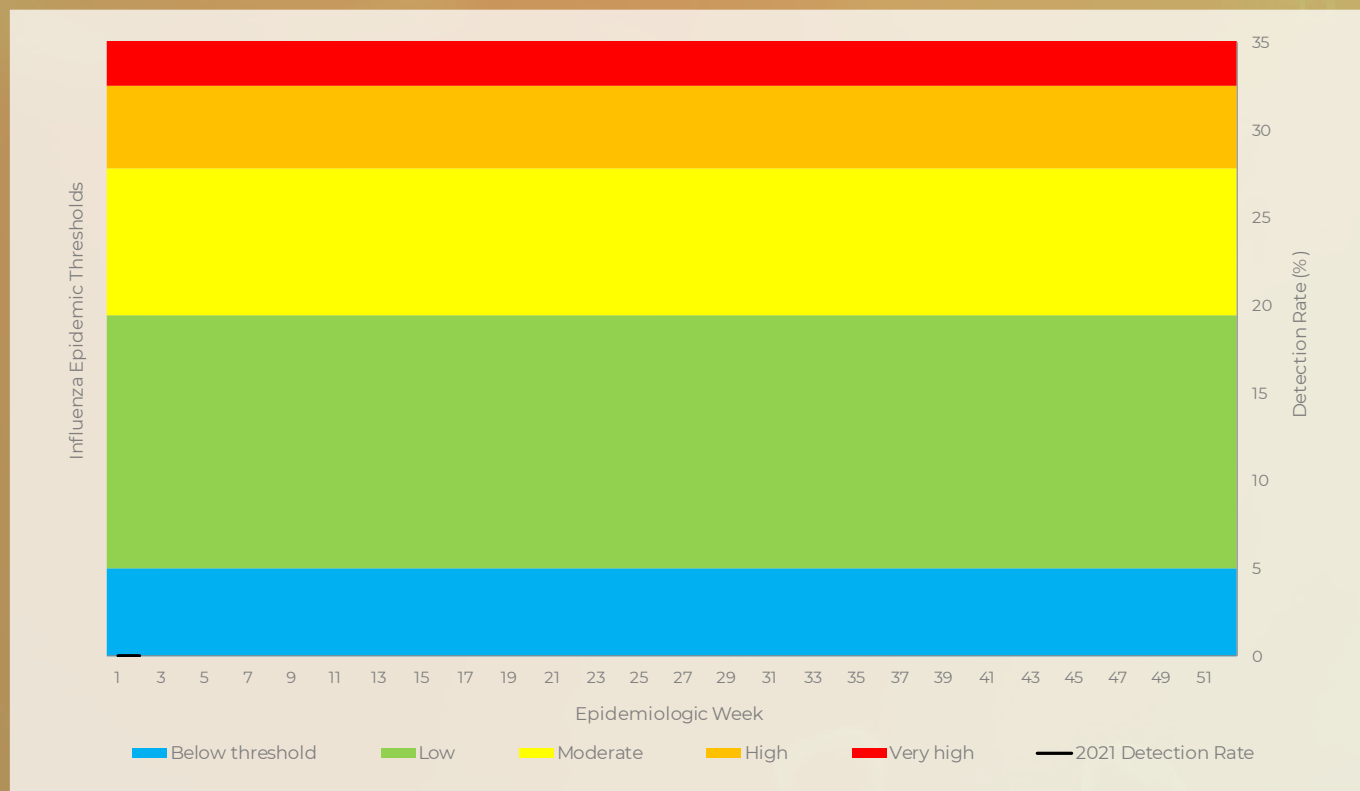
Inconclusive: insufficient viral load in sample and unable to characterise further

# INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

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## NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA



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

\*Thresholds based on 2010-2019 data

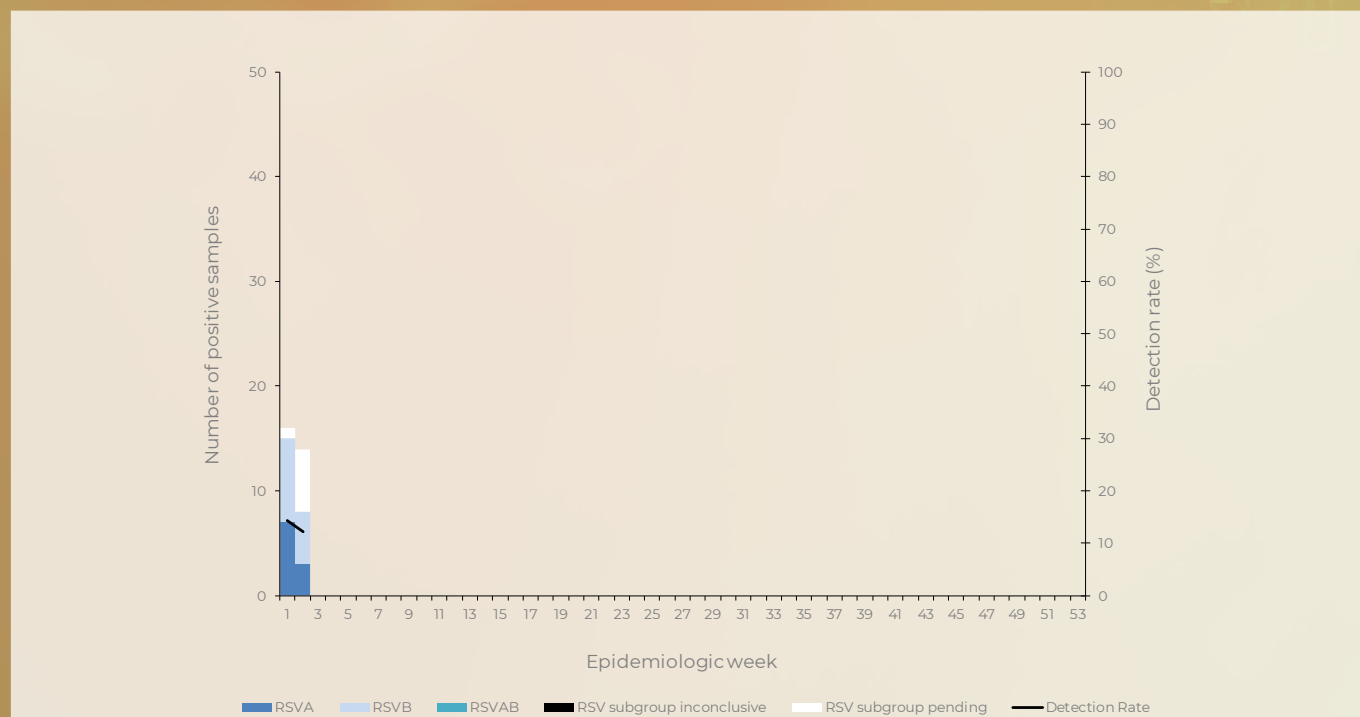


# INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

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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

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

RSV AB: Both RSV A and B subgroup identified

RSV subgroup pending: means RSV results for subgroups are pending

**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)	0	3	0	4	0	57
Helen Joseph-Rahima Moosa (GP)	3	4	0	3	0	46
Klerksdorp-Tshepong (NW)	0	3	0	0	0	23
Mapulaneng-Matikwana (MP)	1	2	0	0	0	53
Red Cross (WC)	6	1	0	0	0	29
Mitchell's Plain (WC)	0	0	0	0	0	19
<b>Total:</b>	<b>10</b>	<b>13</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>227</b>

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

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

RSV AB: Both RSV A and B subgroup identified

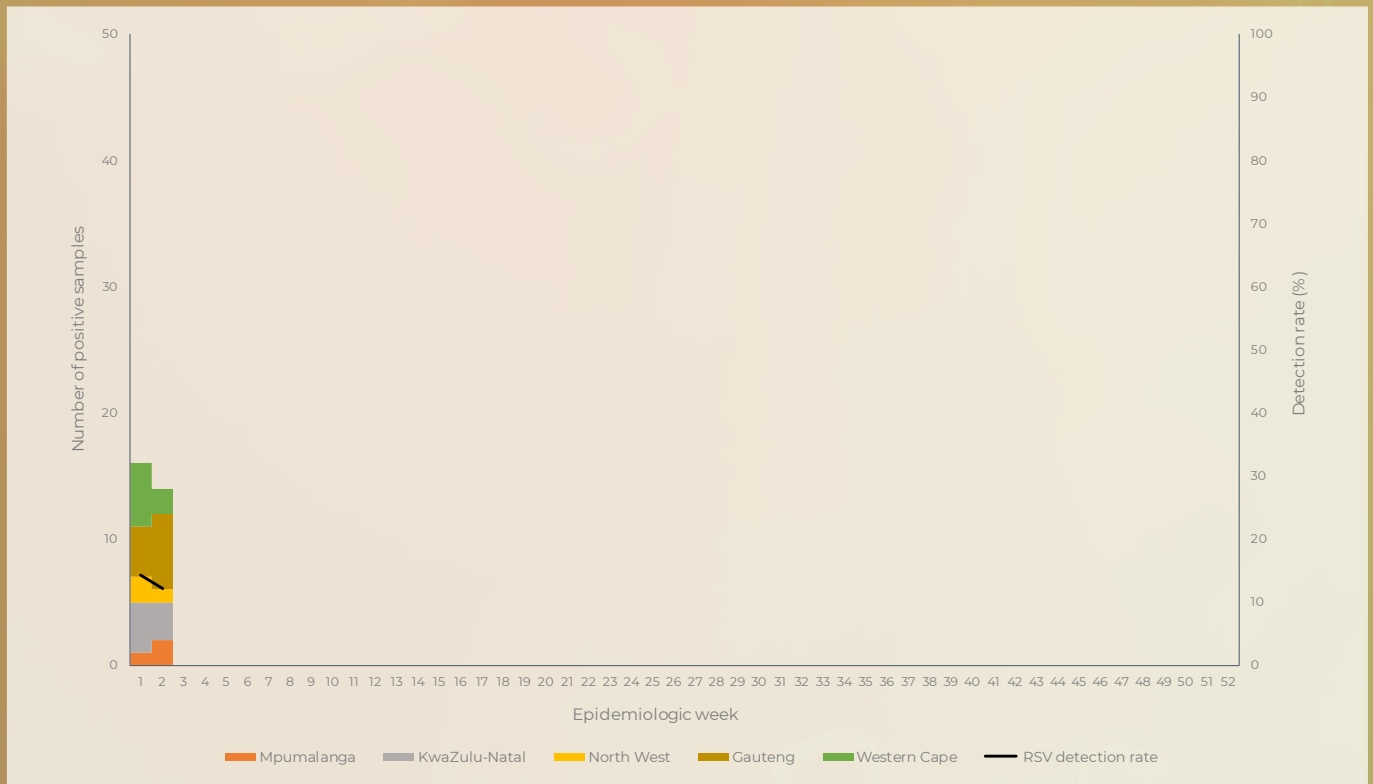
\*RSV results for subgroups are pending

# INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

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## NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA



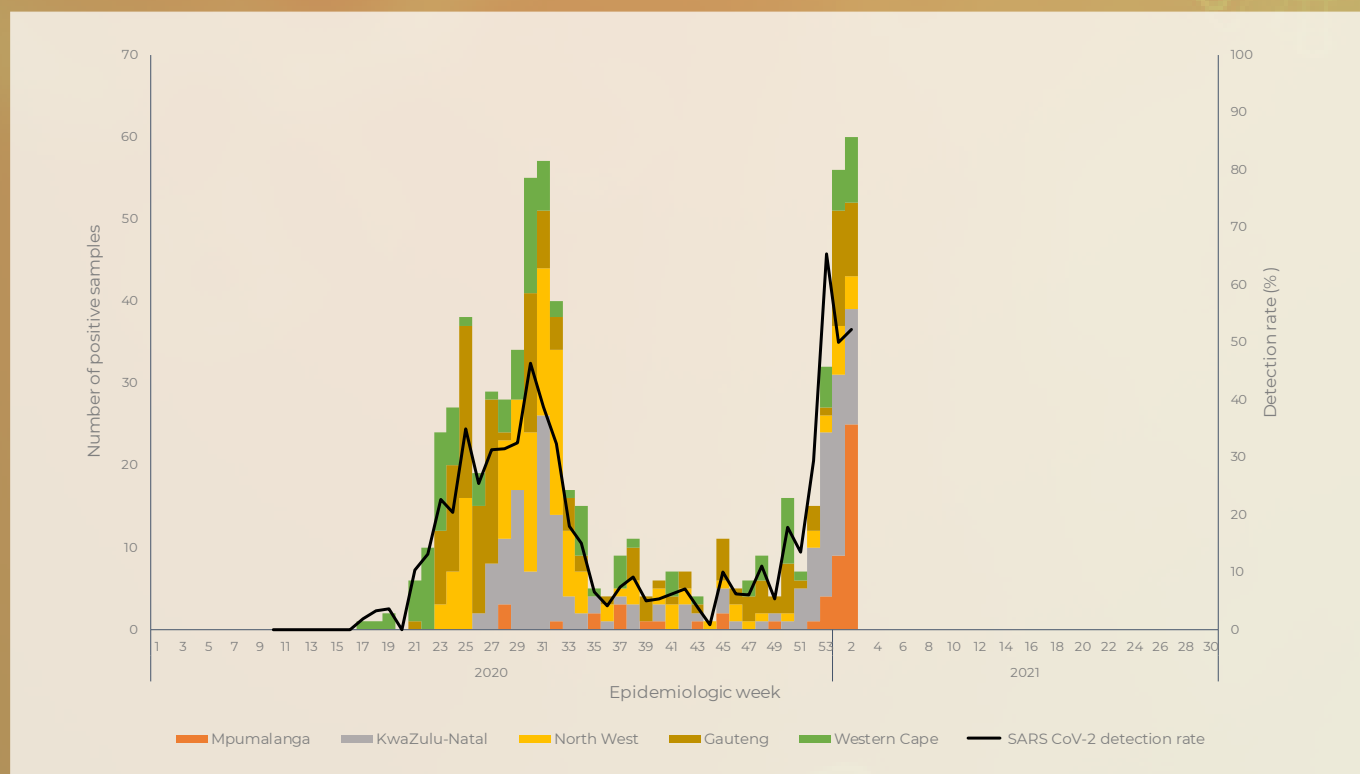
**Figure 12.** Number of samples testing positive for respiratory syncytial virus by province and detection rate by week

# INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

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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

\*Specimens from patients hospitalised with pneumonia at 6 sentinel sites in 5 provinces

**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)	177	757
Helen Joseph-Rahima Moosa (GP)	175	854
Klerksdorp-Tshepong (NW)	151	616
Mapulaneng-Matikwana (MP)	54	355
Red Cross (WC)	39	981
Mitchell's Plain (WC)	86	483
<b>Total:</b>	<b>682</b>	<b>4046</b>

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

# INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

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## 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 – 17 Jan 2021

Characteristic	Influenza-like illness (ILI), public-sector, n=242 (%)	Pneumonia, n=682 (%)
<b>Age group</b>		
0-9	29/242 (12)	55/682 (8)
10-19	19/242 (8)	4/682 (1)
20-39	110/242 (45)	133/682 (20)
40-59	65/242 (27)	252/682 (37)
60-79	19/242 (8)	222/682 (32)
≥80	0/242 (0)	16/682 (2)
<b>Sex-female</b>	139/242 (57)	412/682 (60)
<b>Province*</b>		
Gauteng	N/A	175/682 (26)
KwaZulu-Natal	35/242 (15)	177/682 (26)
Mpumalanga**	18/242 (7)	54/682 (8)
North West	85/242 (35)	151/682 (22)
Western Cape	104/242 (43)	125/682 (18)
<b>Race</b>		
Black	139/208 (67)	549/661 (83)
Coloured	61/208 (29)	78/661 (12)
Asian/Indian	0/208 (0)	21/661 (3)
Other	8/208 (4)	12/661 (2)
<b>Presentation</b>		
Fever	201/208 (97)	366/661 (55)
Cough	207/208 (99)	644/661 (97)
Shortness of breath	58/208 (28)	526/661 (80)
Chest pain	84/208 (40)	305/661 (46)
Diarrhoea	22/208 (11)	46/661 (7)

# INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS AND SARS-CoV-2 SURVEILLANCE REPORT

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Characteristic	Influenza-like illness (ILI), public-sector, n=242 (%)	Pneumonia, n=682 (%)
<b>Underlying conditions</b>		
Hypertension	11/208 (5)	87/661 (13)
Cardiac	0/208 (0)	8/661 (1)
Lung disease	0/208 (0)	1/661 (<1)
Diabetes	3/208 (1)	144/661 (22)
Cancer	0/208 (0)	4/661 (1)
Tuberculosis	0/208 (0)	18/661 (3)
HIV-infection	29/208 (14)	133/661 (20)
Other ***	8/208 (4)	78/661 (12)
<b>Management</b>		
Oxygen therapy	1/208 (<1)	396/661 (60)
ICU admission	N/A	19/661 (3)
Ventilation	N/A	22/661 (3)
<b>Outcome***</b>		
Died	0/208 (0)	65/661 (10)

\*ILI surveillance not conducted in Gauteng province

\*\*Mpumalanga (started enrolling on the 10th November 2020)

\*\*\*Chronic lung, liver and kidney disease, organ transplant, pregnancy, malnutrition, obesity, tracheostomy, prematurity, seizure, stroke, anaemia, asplenia, burns, Systemic lupus erythematosus, seizures

\*\*\*\*Outcome includes patients who are still hospitalised, have been discharged or referred, and those who died

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

Of the 65 patients who died, six were in the 20-39 year age group, 20 in the 40-59 year age group, and 39 were ≥60 years; 43/65 (66%) were female.