

# MONTHLY RESPIRATORY PATHOGENS SURVEILLANCE REPORT

 NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 27 2020

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## CUMULATIVE DATA FROM



## HIGHLIGHTS: WEEK 27

In the current reporting week there were 34 additional patients that tested positive for SARS-CoV-2 in SARI (27), VW (2) and ILI (5) surveillance programs. To date, 186 cases have been detected from all surveillance programmes.

Since the national lockdown there has only been one detection of influenza in all surveillance programmes. This case was from Gauteng from Viral Watch program in week 24 (week starting 8 June 2020).

Low levels of respiratory syncytial virus detections are ongoing but the seasonal threshold has not been breached in 2020.

# INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 27 2020 | REPORTING PERIOD 01 JANUARY 2020 TO 05 JULY 2020

## 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**	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 or chronic 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

\*\*\*INF: influenza virus; RSV: respiratory syncytial virus; BP: *Bordetella pertussis*

\*\*\*\*SARS-CoV-2: Severe acute respiratory syndrome coronavirus 2

# INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

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## COMMENTS

### Influenza

The 2020 influenza season has not yet started although sustained detections of influenza A(H1N1)pdm09 and to a lesser extent influenza B(Victoria) were made from Western Cape Province, in all surveillance programmes from week 2 to week 15. In week 24 (week ending 14th June), one influenza case has been detected in Gauteng province.

**ILI programme:** In 2020 to date, specimens from 710 patients were received from 4 ILI sites. Influenza was detected in 52 specimens (all from Western Cape province), 36 (69%) were identified as influenza A(H1N1)pdm09, one (2%) influenza A subtype inconclusive, 12 (23%) as influenza B (Victoria) and three (6%) B lineage inconclusive (Figure1 and Table1).

**Viral Watch programme:** During the same period, specimens were received from 243 patients from Viral Watch sites in 8 provinces. Influenza was detected in 78 patients, one is an imported case and one is a new case of week 24 since week 14 influenza detections were made. Of the 77 local cases; 75 (98%) were influenza A(H1N1)pdm09, one (1%) influenza A(H3N2) and one (1%) influenza B(Victoria) (Figure4 and Table4). Six (8%; 6/76) of the positive cases had history of international travel.

**Pneumonia surveillance:** Since the beginning of 2020, specimens from 1750 patients with severe respiratory illness (SRI) were received from the 6 sentinel sites. Influenza was detected in 26 patients (all from Western Cape Province), of which 21 (81%) were influenza A(H1N1)pdm09, one (4%) influenza A subtype inconclusive and four (15%) influenza B(Victoria) (Figure7 and Table 6).

### Respiratory syncytial virus

The 2020 RSV season has not yet started. However, ongoing detections of RSV are being made but not consistently exceeding the seasonal threshold. In the previous 3 years the average start of RSV season ranged between week 7 to week 9, therefore the start of the 2020 season is substantially delayed compared to previous years.

**ILI programme:** In 2020 to date, 710 specimens were

tested and RSV was detected in specimens of seven (1%) patients.

**Viral Watch programme:** During the same period, 243 specimens were tested and RSV has not been detected.

**Pneumonia surveillance:** Since the beginning of 2020, 1750 specimens were tested and RSV was detected in specimens of 117 (7%) patients.

### Bordetella Pertussis

**ILI programme:** From 1 January 2020 to date, combined nasopharyngeal and oropharyngeal specimens were tested from 702 patients for *B. pertussis*, two (<1%) tested positive.

**Pneumonia surveillance:** During the same period, combined nasopharyngeal and oropharyngeal specimens were tested from 1742 patients for *B. pertussis*, which was detected in eight (<1%) specimens. In addition, *B. pertussis* was not detected in 43 specimens from patients who met suspected 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:** In 2020 to date, specimens from 475 patients were tested and SARS-CoV-2 was detected in 36 (8%) patients.

**Viral Watch programme:** In 2020 to date, specimens were tested from 138 patients and SARS-CoV-2 was detected in eight (6%) patients.

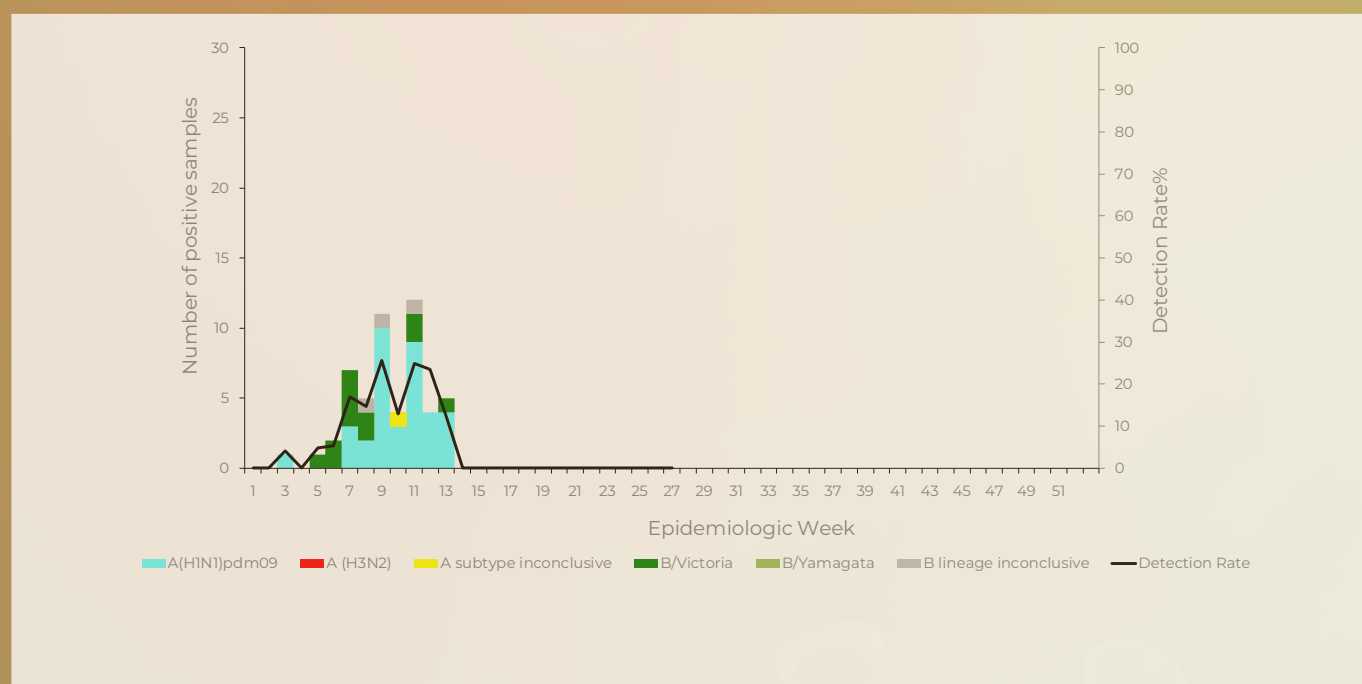
**Pneumonia surveillance:** In 2020 to date, specimens from 1245 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 142 (11%) patients.

# INFLUENZA, RSV, BORDETELLA PERTUSSIS 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 3 sentinel sites in 3 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
Eastridge (WC)	33	0	1	12	0	3	310
Edendale Gateway (KZ)	0	0	0	0	0	0	93
Jouberton (NW)	0	0	0	0	0	0	129
Mitchell's Plain (WC)	3	0	0	0	0	0	157
<b>Total:</b>	<b>36</b>	<b>0</b>	<b>1</b>	<b>12</b>	<b>0</b>	<b>3</b>	<b>710</b>

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

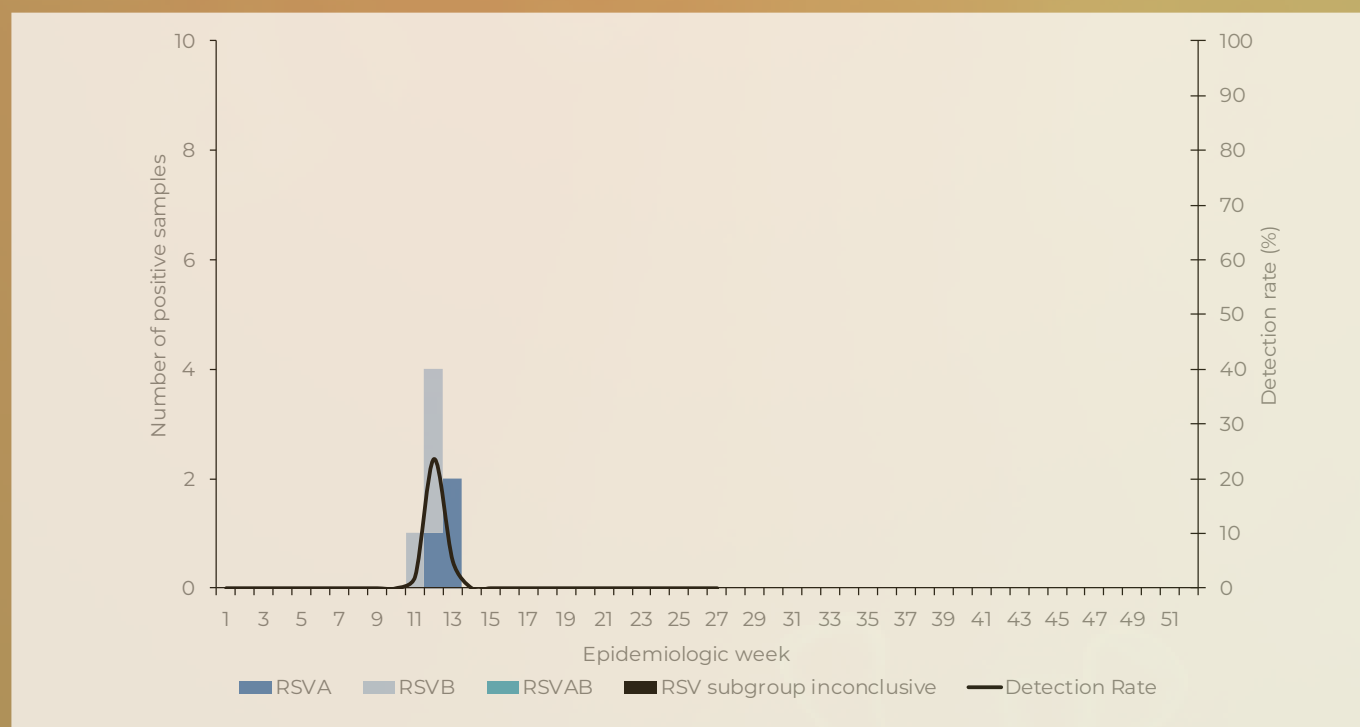
Inconclusive: insufficient viral load in sample and unable to characterise further

# INFLUENZA, RSV, BORDETELLA PERTUSSIS 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	Total samples
Eastridge (WC)	0	2	0	0	331
Edendale Gateway (KZ)	3	2	0	0	93
Jouberton (NW)	0	0	0	0	129
Mitchell's Plain (WC)	0	0	0	0	157
<b>Total:</b>	<b>3</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>710</b>

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

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

RSV AB: Both RSV A and B subgroup identified

# INFLUENZA, RSV, BORDETELLA PERTUSSIS 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 *B. pertussis* and detection rate by month

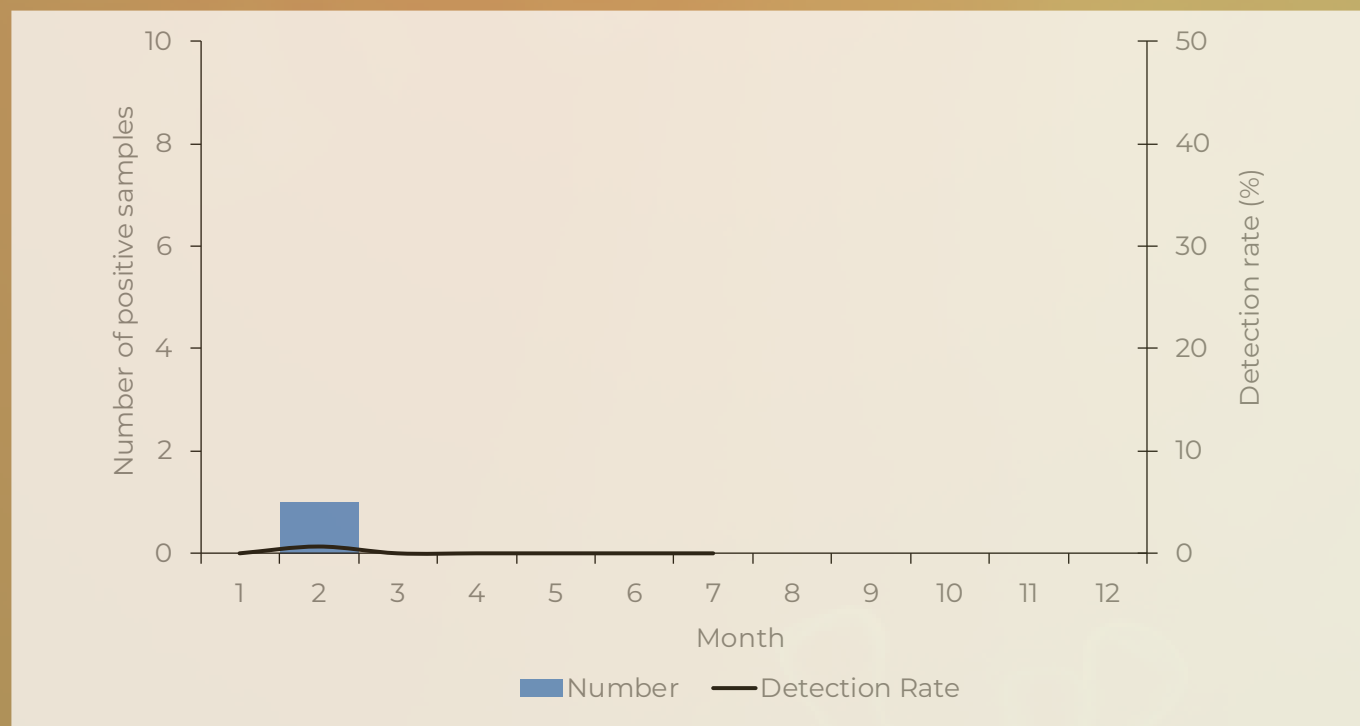


Table 3. Cumulative number of *B. pertussis* identified and total number of samples\*\* tested by province

Clinic (Province)	<i>B. pertussis</i> Positive**	Total samples tested
Eastridge (WC)	1	331
Edendale Gateway (KZ)	0	85
Jouberton (NW)	1	129
Mitchell's Plain (WC)	0	157
<b>Total:</b>	<b>2</b>	<b>702</b>

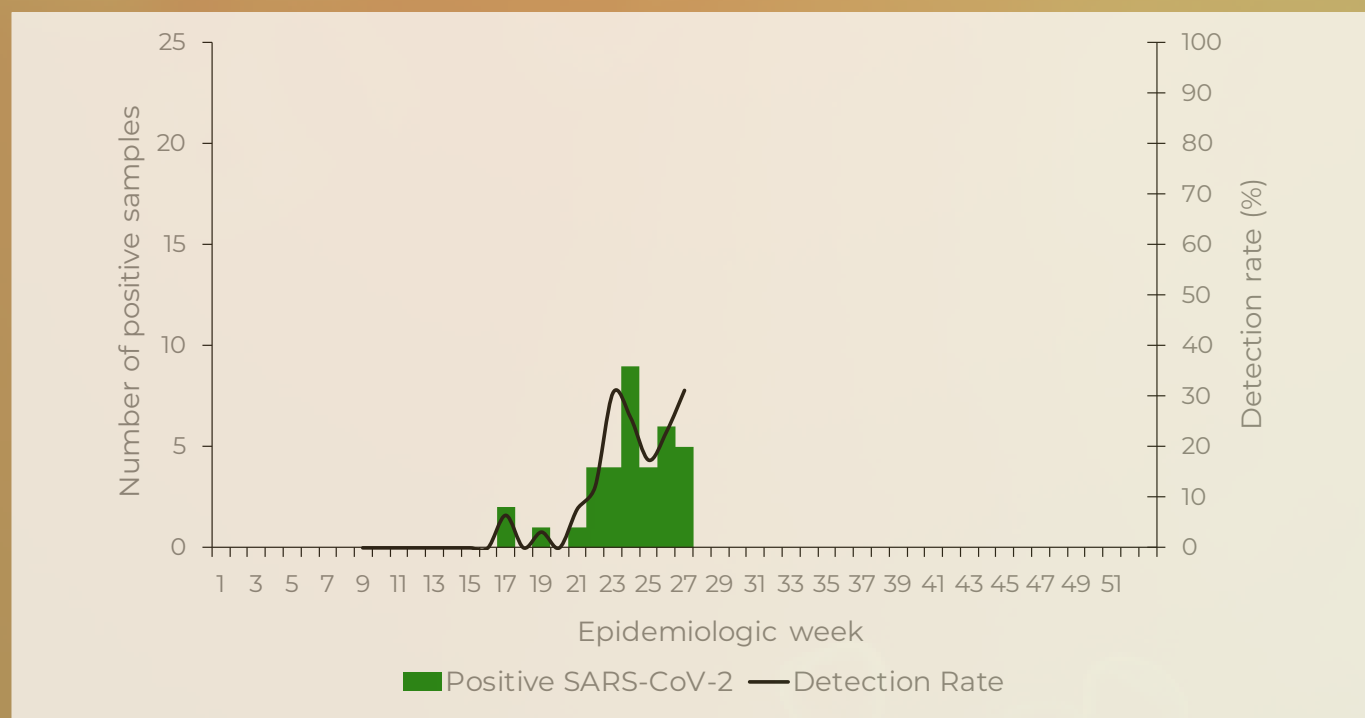
KZ: KwaZulu-Natal; NW: North West; WCP: Western Cape

# INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 27 2020 | REPORTING PERIOD 02 MARCH 2020 TO 05 JULY 2020

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

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



\*Specimens from patients with influenza-like illnesses at 4 sentinel sites in 3 provinces

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
Eastridge (WC)	16	228
Edendale Gateway (KZ)	4	43
Jouberton (NW)	1	80
Mitchell's Plain (WC)	15	124
<b>Total:</b>	<b>36</b>	<b>475</b>

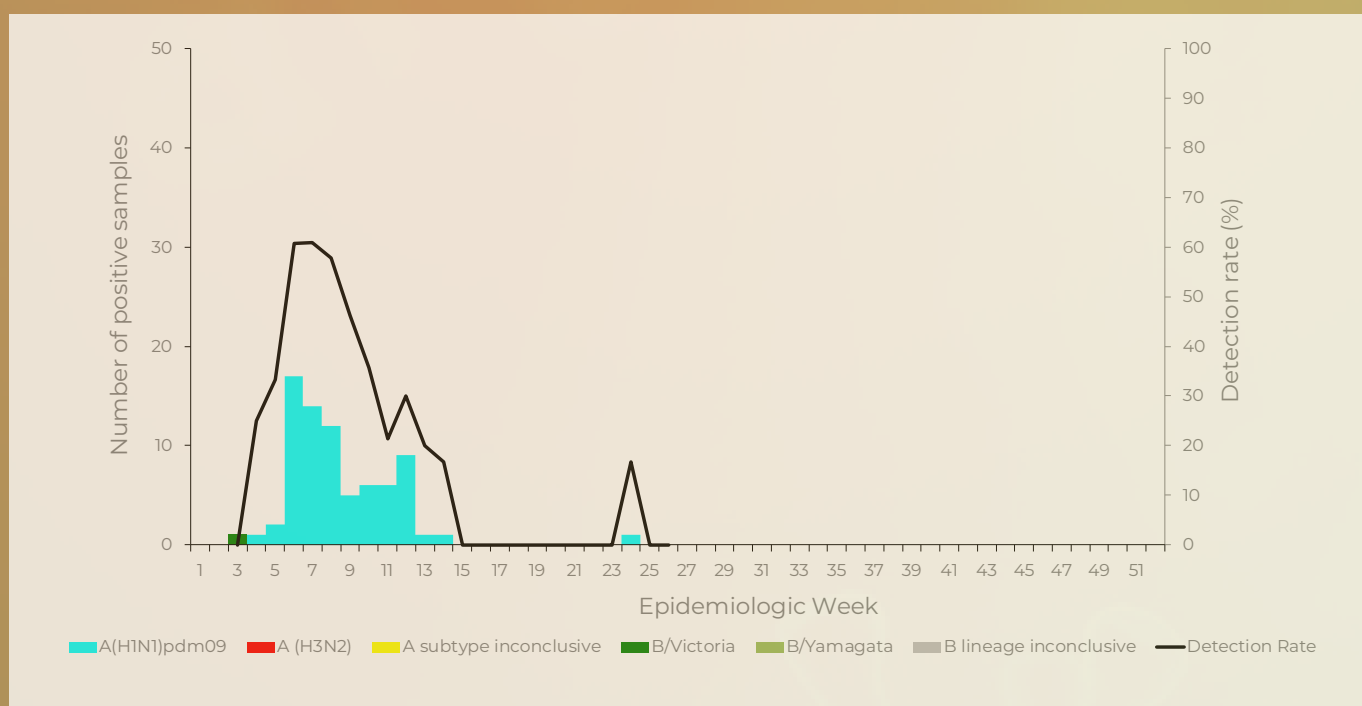
KZ: KwaZulu-Natal; NW: North West; WCP: Western Cape

# INFLUENZA, RSV, BORDETELLA PERTUSSIS 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 90 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 5. Cumulative number of influenza subtype and lineage and total number of samples tested by province

Clinic (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	4
Free State	0	0	0	0	0	0	7
Gauteng	2	0	0	0	0	0	76
Limpopo	0	0	0	0	0	0	2
Mpumalanga	0	0	0	0	0	0	2
North West	0	0	0	0	0	0	0
Northern Cape	0	0	0	0	0	0	4
Western Cape	74	1	0	1	0	0	148
<b>Total:</b>	<b>76</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>243</b>

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

From 01 January 2020 to date, 10 patients were tested for influenza at the time of entry into South Africa following travel abroad and influenza was detected in three patients, of which one influenza A(H1N1)pdm09 and two influenza A(H3N2). Patients known to have acquired influenza abroad are not included in the table or epidemiological curve.

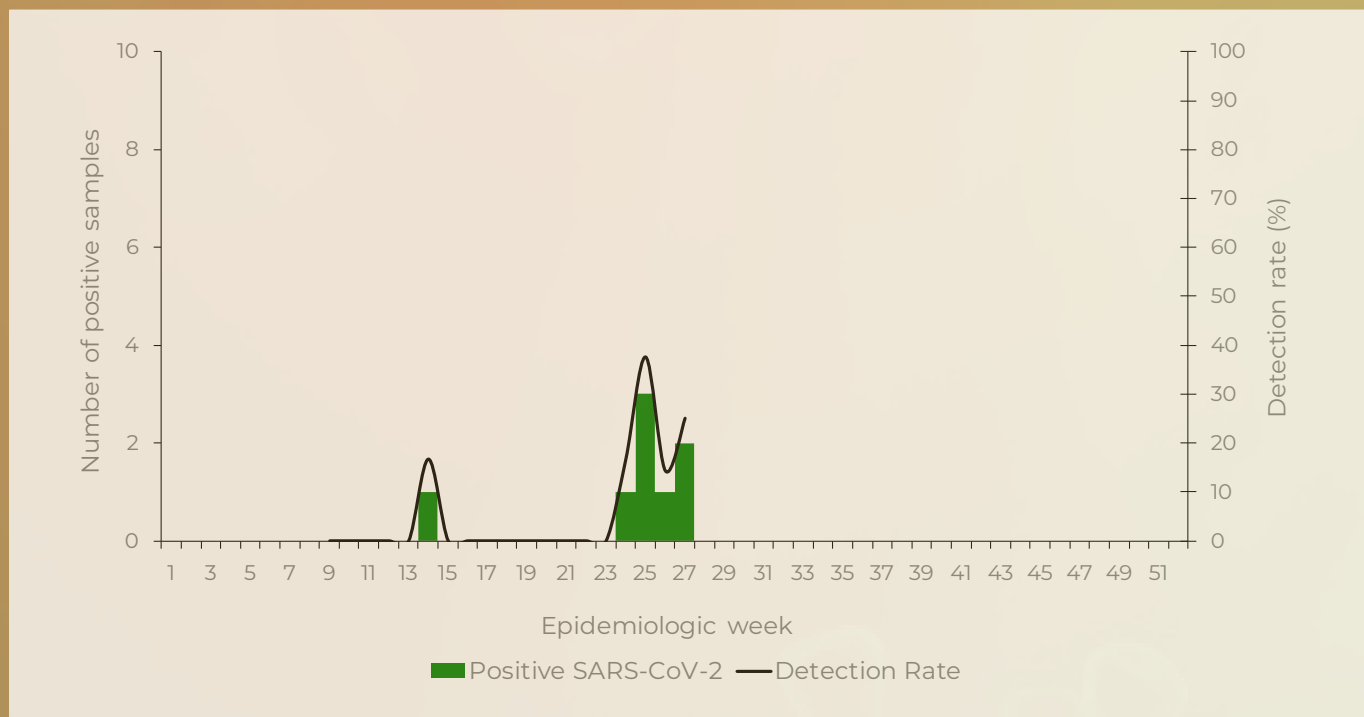


# INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 27 2020 | REPORTING PERIOD 02 MARCH 2020 TO 05 JULY 2020

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

Figure 6. 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

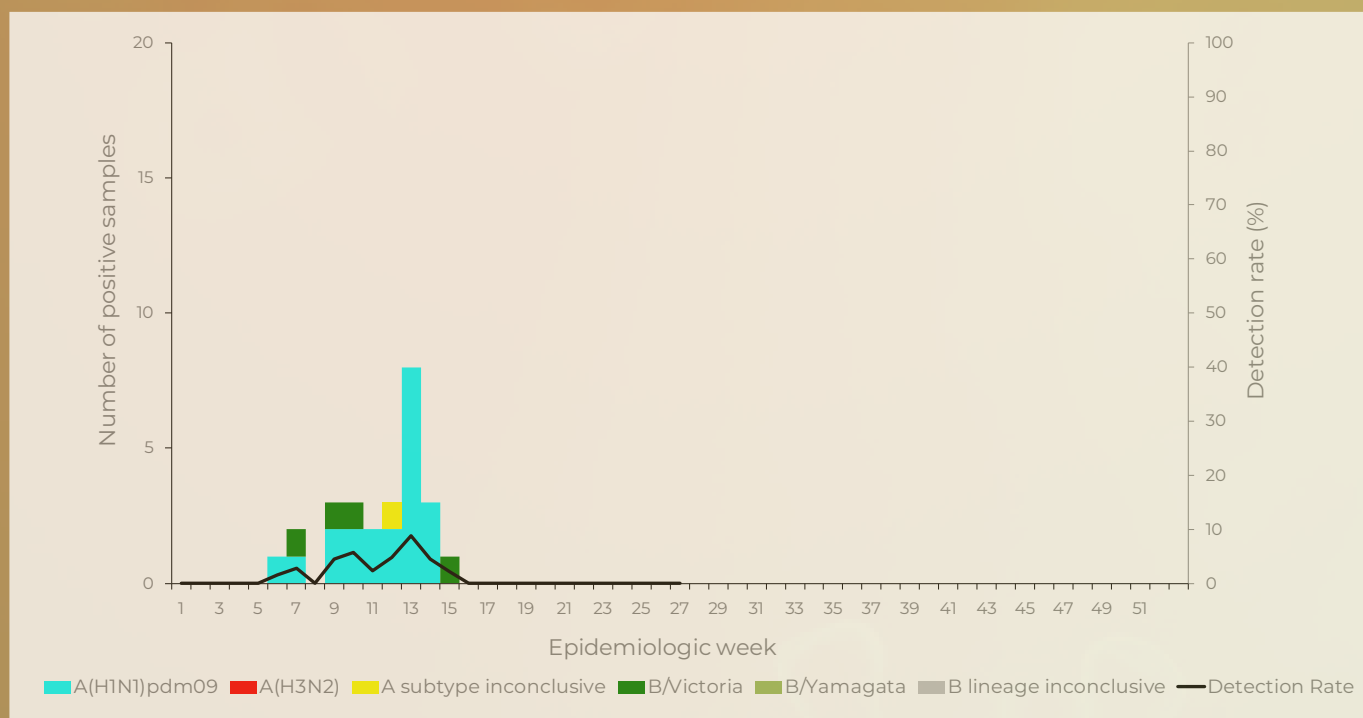
Province	SARS-CoV-2 positive	Total samples tested
Eastern Cape	0	3
Free State	0	7
Gauteng	5	65
Limpopo	0	1
Mpumalanga	0	0
North West	0	0
Northern Cape	0	2
Western Cape	3	60
<b>Total:</b>	<b>8</b>	<b>138</b>

# INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 27 2020 | REPORTING PERIOD 01 JANUARY 2020 TO 05 JULY 2020

## NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

Figure 7. Number of positive samples\* by influenza subtype and lineage and detection rate\*\* by week



\*Specimens from patients hospitalized 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

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	251
Helen Joseph-Rahima Moosa (GP)	0	0	0	0	0	0	479
Klerksdorp-Tshepong (NW)	0	0	0	0	0	0	264
Mpumalanga - Matikwana (MP)	0	0	0	0	0	0	130
Red Cross (WC)	19	0	0	2	0	0	444
Mitchellsplain (WC)	2	0	1	2	0	0	182
<b>Total:</b>	<b>21</b>	<b>0</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>1750</b>

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

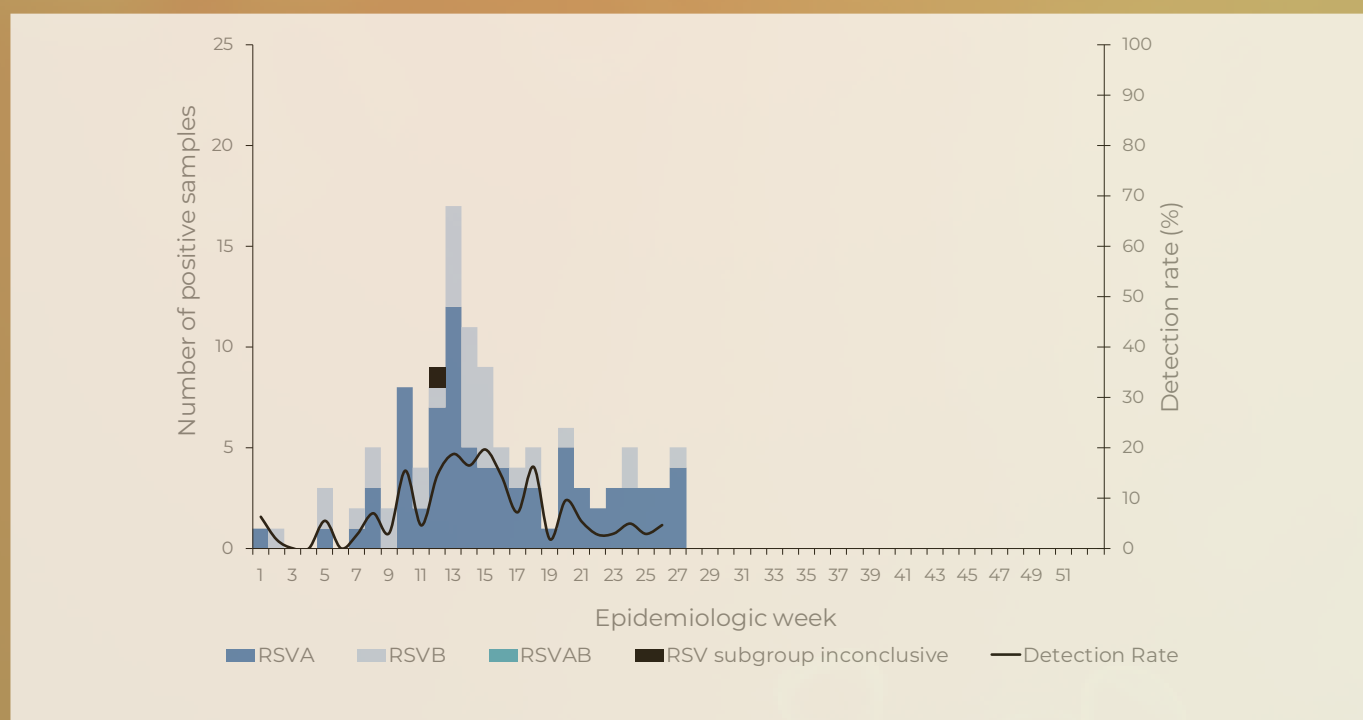
Inconclusive: insufficient viral load in sample and unable to characterise further

# INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

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## NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

Figure 8. 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 8. Cumulative number of respiratory syncytial virus subgroups identified and total number of samples tested by hospital

Clinic (Province)	RSVA	RSVB	RSVAB	RSV subgroup inconclusive	Total samples
Edendale (KZ)	2	9	0	1	251
Helen Joseph-Rahima Moosa (GP)	34	10	0	0	479
Klerksdorp-Tshepong (NW)	1	0	0	0	264
Mapulaneng-Matikwana (MP)	0	0	0	0	130
Red CrossWC)	42	16	0	0	444
Mitchell's Plain (WC)	2	0	0	0	182
<b>Total:</b>	<b>81</b>	<b>35</b>	<b>0</b>	<b>1</b>	<b>1750</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

# INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 27 2020 | REPORTING PERIOD 01 JANUARY 2020 TO 05 JULY 2020

## NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

Figure 9. Number of samples testing positive for *B. pertussis* and detection rate by month

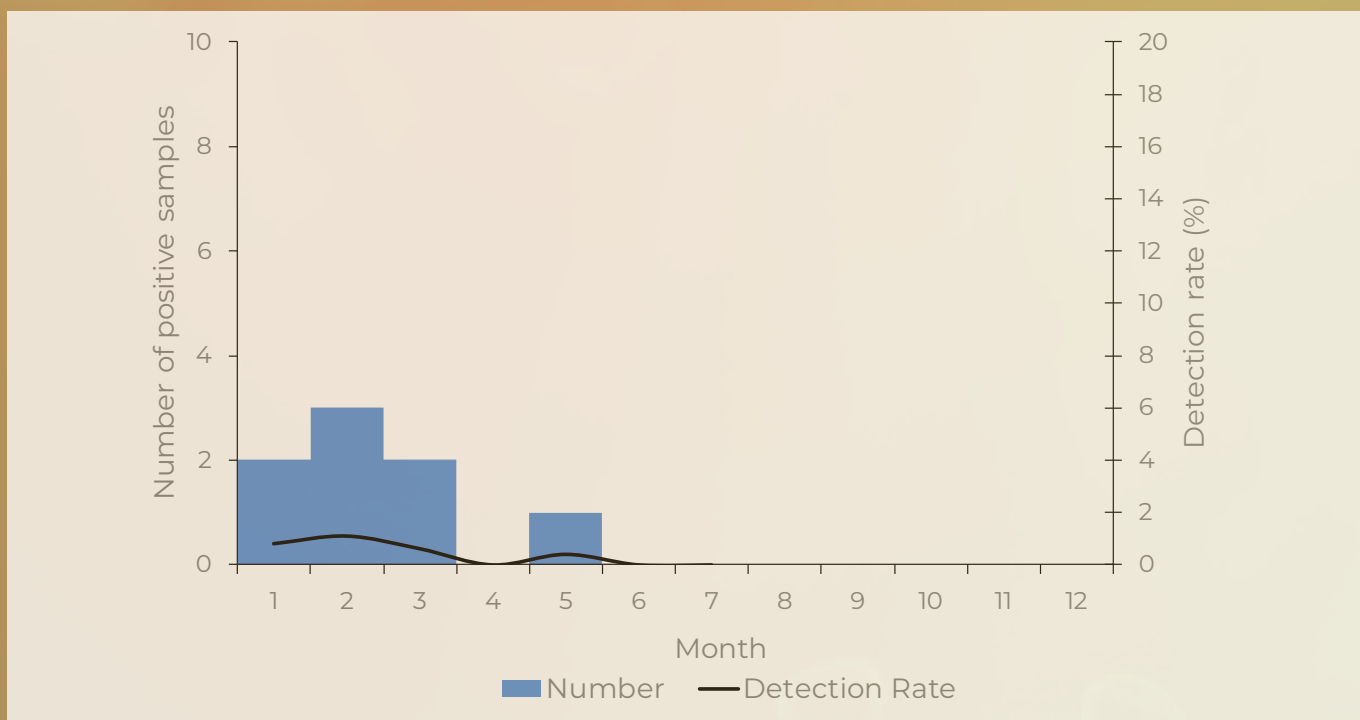


Table 9. Cumulative number of *B. pertussis* identified and total number of samples tested by hospital and province

Hospital (Province)	<i>B.pertussis</i> Positive	Total samples
Edendale (KZ)	1	232
Helen Joseph-Rahima Mooas (GP)	1	494
Klerksdorp-Tshepong (NW)	1	265
Mpumalanga - Matikwana (MP)	0	126
Red Cross (WC)	4	443
Mitchells Plain (WC)	1	182
<b>Total:</b>	<b>8</b>	<b>1 742</b>

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

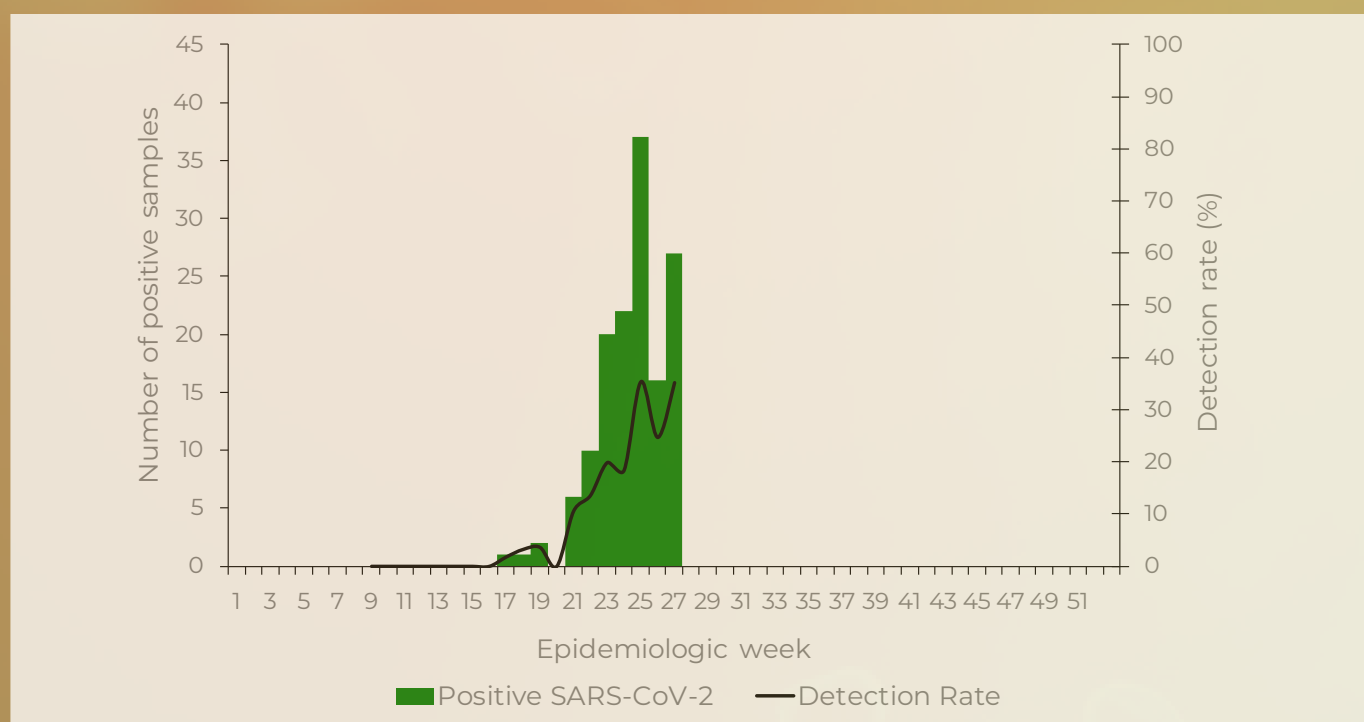
I\*\*39 cases met the suspected pertussis case definition but did not meet Pneumonia Surveillance case definition. These are not included in the table and epidemiologic curve

# INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 27 2020 | REPORTING PERIOD 02 MARCH 2020 TO 05 JULY 2020

## NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

Figure 10. Number of samples testing positive for SARS-CoV-2\*, and detection rate by week



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

Table 10. 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)	9	176
Helen Joseph-Rahima Moosa (GP)	77	361
Klerksdorp-Tshepong (NW)	26	191
Mapulaneng-Matikwana (MP)	0	81
Red Cross (WC)	10	302
Mitchell's Plain (WC)	20	134
<b>Total:</b>	<b>142</b>	<b>1245</b>

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

# INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 27 2020 | REPORTING PERIOD 02 MARCH 2020 TO 05 JULY 2020

## 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- 05 July 2020

Characteristic	Influenza -like illness (ILI), public sector, n =36 (%)	Pneumonia surveillance, n=142 (%)
<b>Age group</b>		
0-9	12/36 (33)	13/142 (9)
10-19	2/36 (6)	3/142 (2)
20-29	10/36 (28)	15/142 (11)
30-39	7/36 (19)	36/142(25)
40-49	4/36 (11)	26/142 (18)
50-59	1/36 (3)	25/142 (18)
60-69	0/36 (0)	18/142 (13)
70-79	0/36 (0)	6/142 (4)
≥80	0/36 (0)	0/142 (0)
<b>Sex-female</b>	17/36 (47)	88/142 (62)
<b>Province*</b>		
Gauteng	0/36 (0)	84/142 (59)
KZN	4/36 (11)	1/142 (1)
North West	1/36 (3)	26/142 (18)
Western Cape	31/36 (86)	30/142 (21)
<b>Race</b>		
Black	18/36 (50)	110/142 (77)
Coloured	8/36 (22)	19/142 (13)
Asian/Indian	4/36 (11)	11/142 (8)
Other	7/36 (17)	2/142 (1)
<b>Presentation</b>		
Fever	24/24 (100)	61/87 (70)
Cough	24/24 (100)	85/87 (98)
Shortness of breath	0/24 (0)	58/87 (67)
Tight chest	0/24 (0)	5/87 (6)
Diarrhoea	0/24 (0)	6/87 (7)

# INFLUENZA, RSV, BORDETELLA PERTUSSIS AND SARS-CoV-2 SURVEILLANCE REPORT

WEEK 27 2020 | REPORTING PERIOD 02 MARCH 2020 TO 05 JULY 2020

## SUMMARY OF LABORATORY-CONFIRMED SARS-CoV-2 CASES

Characteristic	Influenza -like illness (ILI), public sector, n =36 (%)	Pneumonia surveillance, n=142 (%)
<b>Underlying conditions</b>		
Hypertension	1/24 (4)	21/87 (24)
Cardiac	0/24 (0)	0/87 (0)
Respiratory	0/24 (0)	0/87 (0)
Diabetes	0/24 (0)	14/87 (16)
Cancer	0/24 (0)	0/87 (0)
Tuberculosis	0/24 (0)	2/87 (2)
Other**	0/24 (0)	6/87 (7)
HIV-infection	0/24 (0)	12/87 (14)
<b>Management</b>		
Oxygen therapy	0/24 (0)	26/87 (30)
ICU admission	N/A	2/87 (3)
Ventilation	N/A	3/87 (3)
<b>Outcome***</b>		
Died	0/24 (0)	3/87 (3)

\*Only provinces with positive cases included in the table, ILI surveillance not conducted in Gauteng Province; \*\* Chronic liver conditions, malnutrition, obesity, tracheostomy, prematurity, seizure, stroke, asthma, chronic lung disease, includes liver, renal, artery, therapy, organ, anaemia, asplenia, burns, immune, sle, nephron, spinal, seizure, emphysema; \*\*\*Outcome accounts for patient's discharged, still admitted, referred and those that died. Therefore those that haven't died are discharged/referred or still admitted

**Note:** Three patients, a 38-year-old female, 59-year-old male and a 53-year old male, died. All had underlying medical conditions. Children may be over-represented among hospitalised patients due to the inclusion of a large paediatric hospital in Cape Town. Data on clinical presentation, underlying illness, management and outcome may be delayed and are only presented for individuals with available data.