

WEEKLY RESPIRATORY PATHOGENS SURVEILLANCE REPORT

SOUTH AFRICA WEEK 31 2020

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CUMULATIVE DATA FROM



HIGHLIGHTS: WEEK 31

In the current reporting week there were 83 additional patients that tested positive for SARS-CoV-2 in SARI (60), VW (1) and ILI (22) surveillance programs. To date, 418 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).

Although there has been an increase in the detection of respiratory syncytial virus, detection levels remain below the seasonal threshold.

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PROGRAMME DESCRIPTIONS

Programme	Influenza-like illness (ILI)	Viral Watch	National syndromic surveillance for pneumonia
Start year	2012	1984	2009
Provinces*	KZ NW WC**	EC FS GP LP MP NC NW WC	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 ($\geq 38^{\circ}\text{C}$) and cough, & onset ≤ 10 days	An acute respiratory illness with a temperature ($\geq 38^{\circ}\text{C}$) and cough, & onset ≤ 10 days	Acute or chronic 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

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

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

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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 862 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 288 patients from Viral Watch sites in eight provinces. Influenza was detected in 79 patients, five of which were acquired abroad. Of the 74 locally acquired infections, all were identified as influenza A(H1N1)pdm09.

Pneumonia surveillance: Since the beginning of 2020, specimens from 2195 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

Although the 2020 RSV season has not started, with only sporadic detections since mid April, there has been a moderate increase in detection over the past month in both ILI and pneumonia surveillance programmes.

ILI programme: In 2020 to date, 862 specimens were tested and RSV was detected in specimens of 12 (1%) patients.

Viral Watch programme: During the same period, 288 specimens were tested and RSV has not been

detected.

Pneumonia surveillance: Since the beginning of 2020, 2195 specimens were tested and RSV was detected in specimens of 155 (7%) patients.

Bordetella pertussis

ILI programme: From 1 January 2020 to date, combined nasopharyngeal and oropharyngeal specimens were tested from 863 patients for *B. pertussis*, two (<1%) tested positive.

Pneumonia surveillance: During the same period, combined nasopharyngeal and oropharyngeal specimens were tested from 2216 patients for *B. pertussis*, which was detected in eight (<1%) specimens. In addition, *B. pertussis* was not detected in 31 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: In 2020 to date, specimens from 629 patients were tested and SARS-CoV-2 was detected in 89 (14%) patients.

Viral Watch programme: In 2020 to date, specimens were tested from 182 patients and SARS-CoV-2 was detected in 21 (12%) patients.

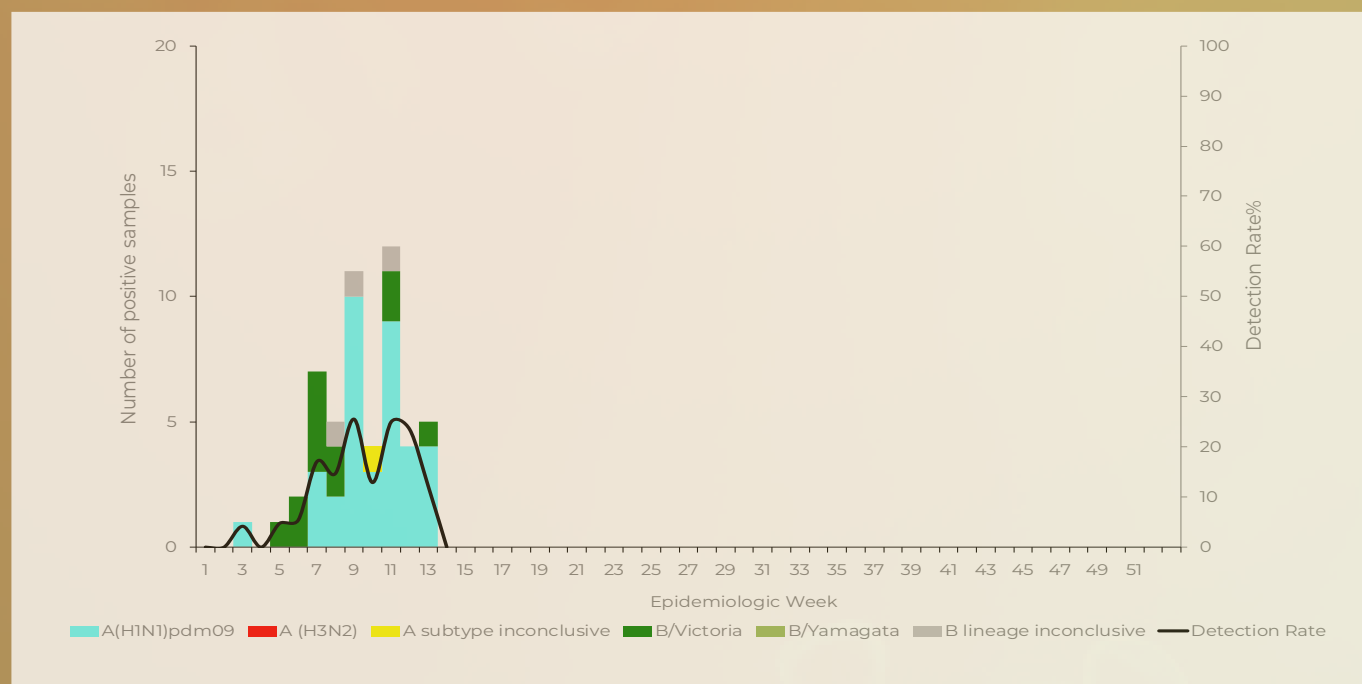
Pneumonia surveillance: In 2020 to date, specimens from 1704 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 308 (18%) patients.

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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



*Specimens from patients with influenza-like illnesses at 4 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	370
Edendale Gateway (KZ)	0	0	0	0	0	0	114
Jouberton (NW)	0	0	0	0	0	0	166
Mitchell's Plain (WC)	3	0	0	0	0	0	212
Total:	36	0	1	12	0	3	862

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

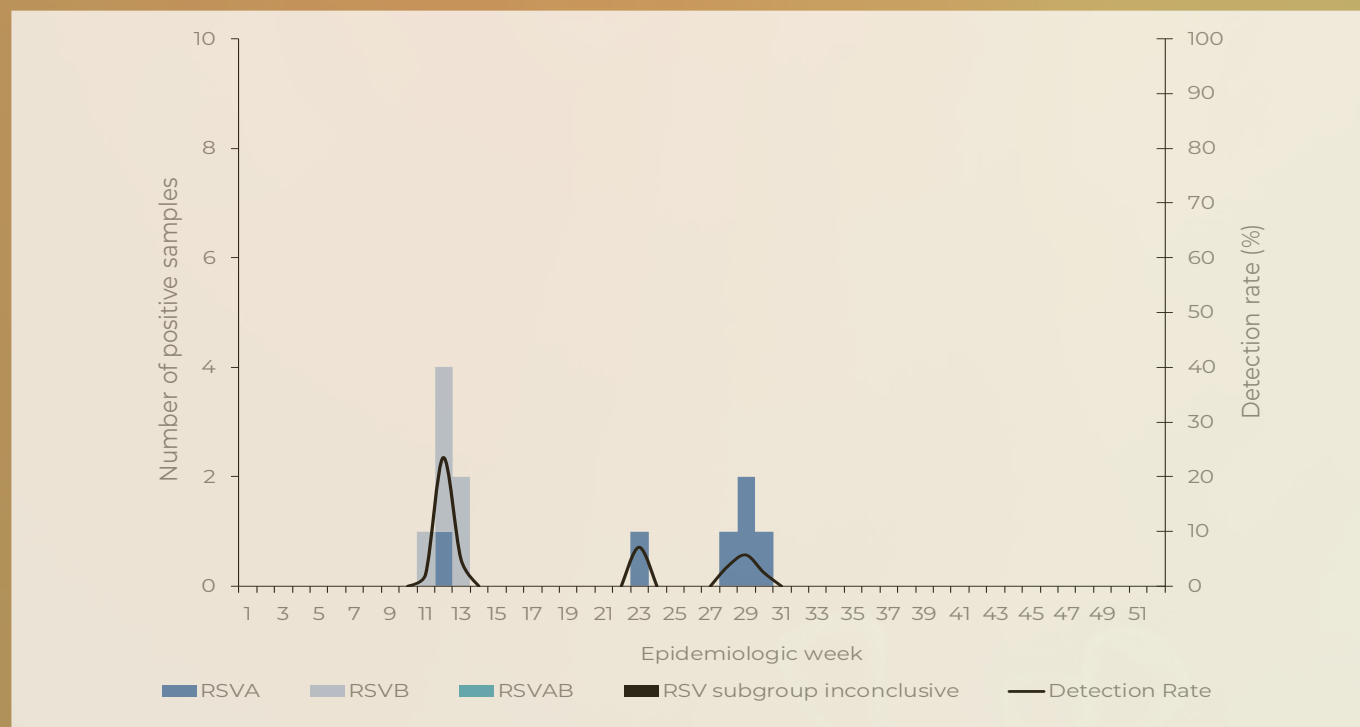
Inconclusive: insufficient viral load in sample and unable to characterise further

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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)	4	2	0	0	370
Edendale Gateway (KZ)	1	4	0	0	114
Jouberton (NW)	0	0	0	0	166
Mitchell's Plain (WC)	1	0	0	0	212
Total:	6	6	0	0	862

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

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

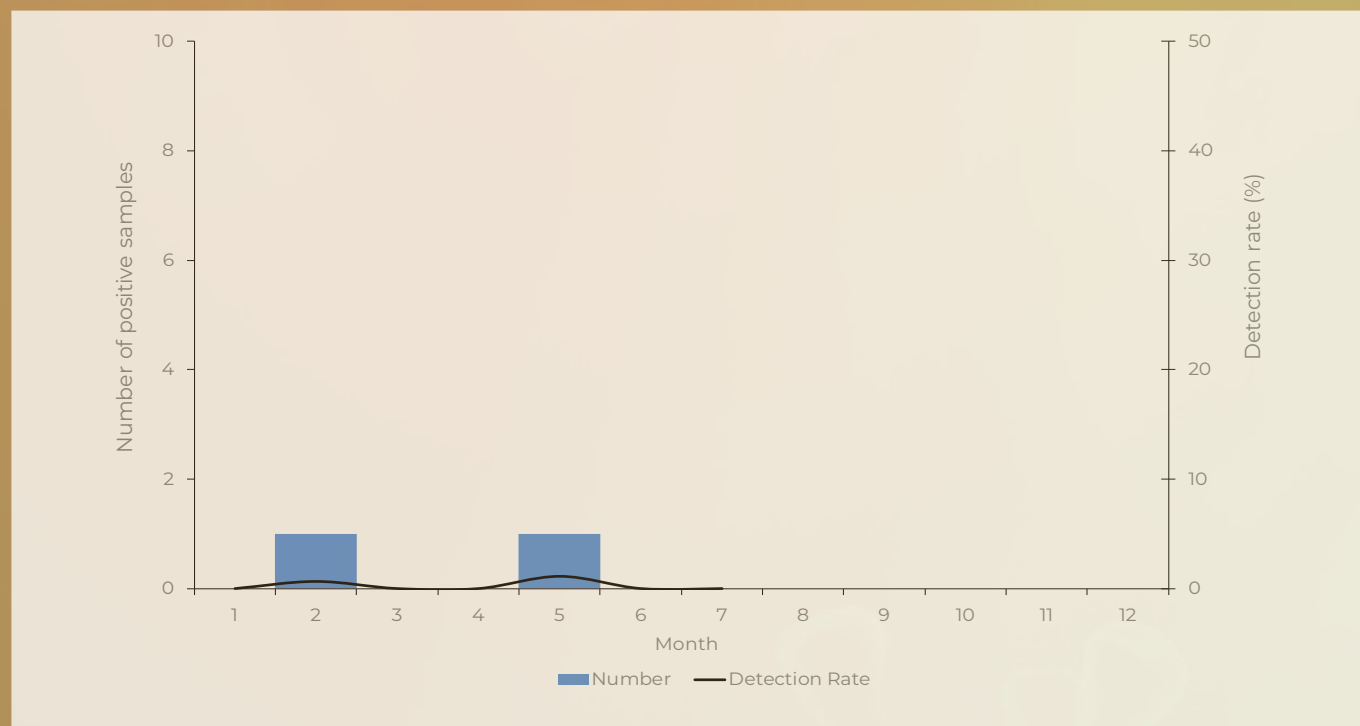
RSV AB: Both RSV A and B subgroup identified

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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



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

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
Eastridge (WC)	1	370
Edendale Gateway (KZ)	0	114
Jouberton (NW)	1	167
Mitchell's Plain (WC)	0	212
Total:	2	863

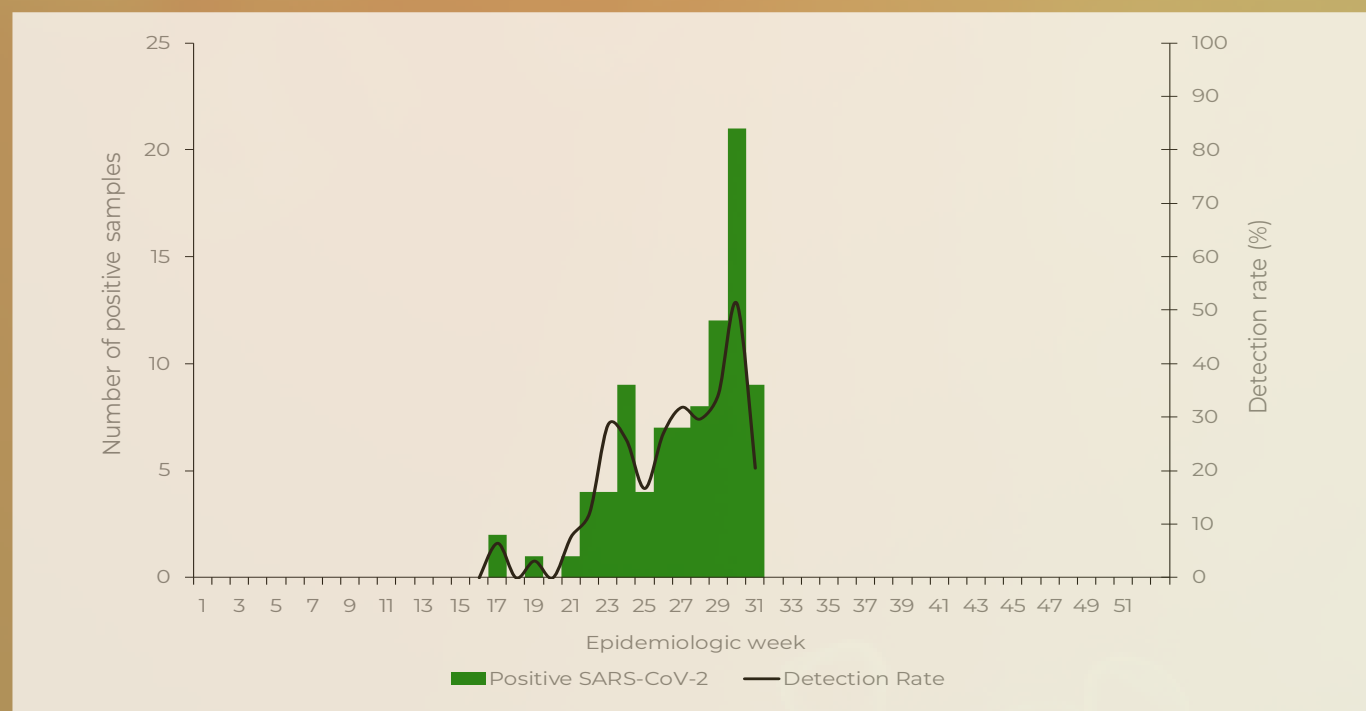
KZ: KwaZulu-Natal; NW: North West; WC: Western Cape

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INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

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)	23	267
Edendale Gateway (KZ)	17	64
Jouberton (NW)	15	118
Mitchell's Plain (WC)	34	180
Total:	89	629

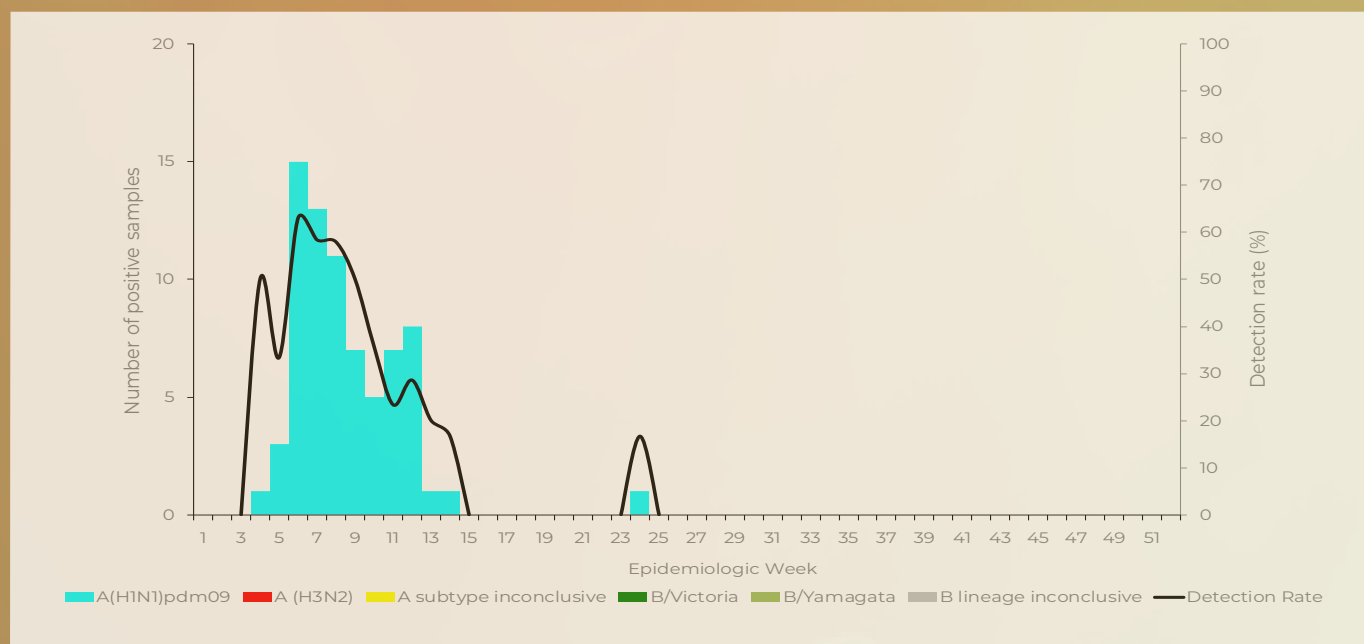
KZ: KwaZulu-Natal; NW: North West; WC: Western Cape

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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	11
Gauteng	1	0	0	0	0	0	105
Limpopo	0	0	0	0	0	0	3
Mpumalanga	0	0	0	0	0	0	6
North West	0	0	0	0	0	0	0
Northern Cape	0	0	0	0	0	0	4
Western Cape	75	0	0	0	0	0	155
Total:	76	0	0	0	0	0	288

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).

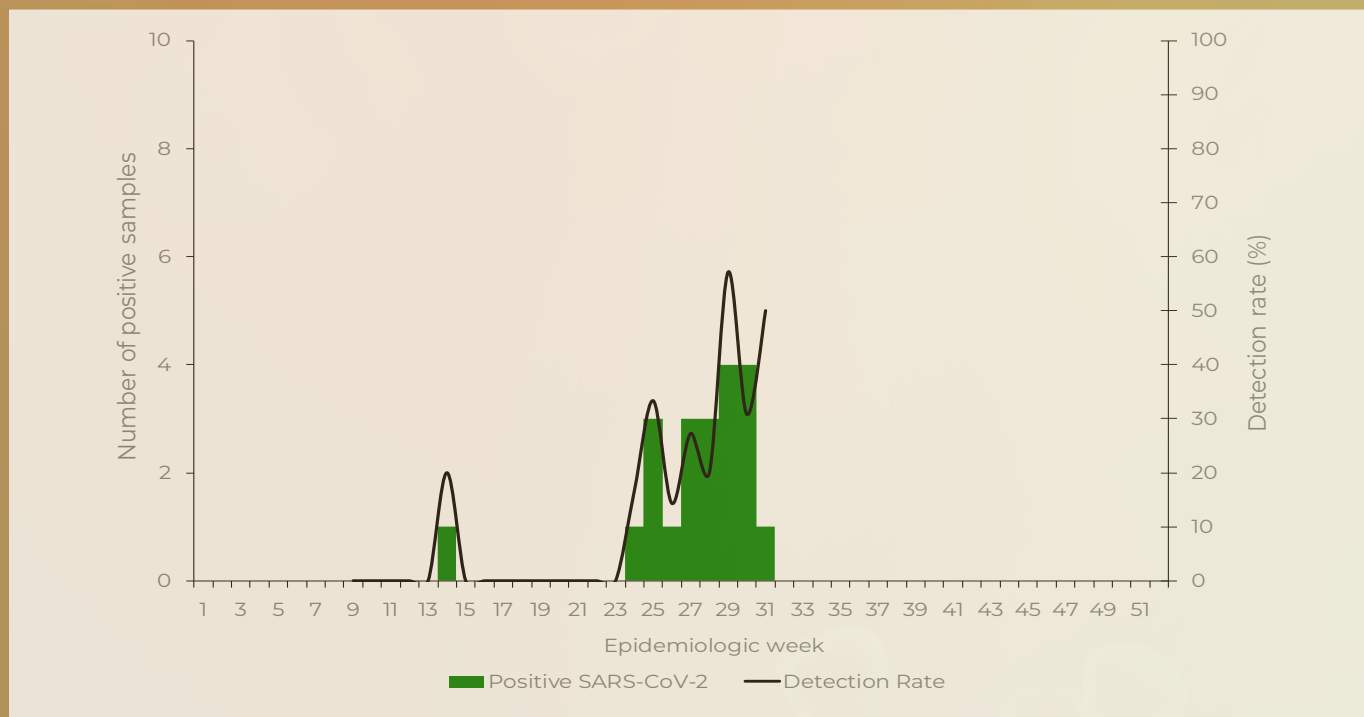
Patients known to have acquired influenza abroad are not included in the table or epidemiological curve.

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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

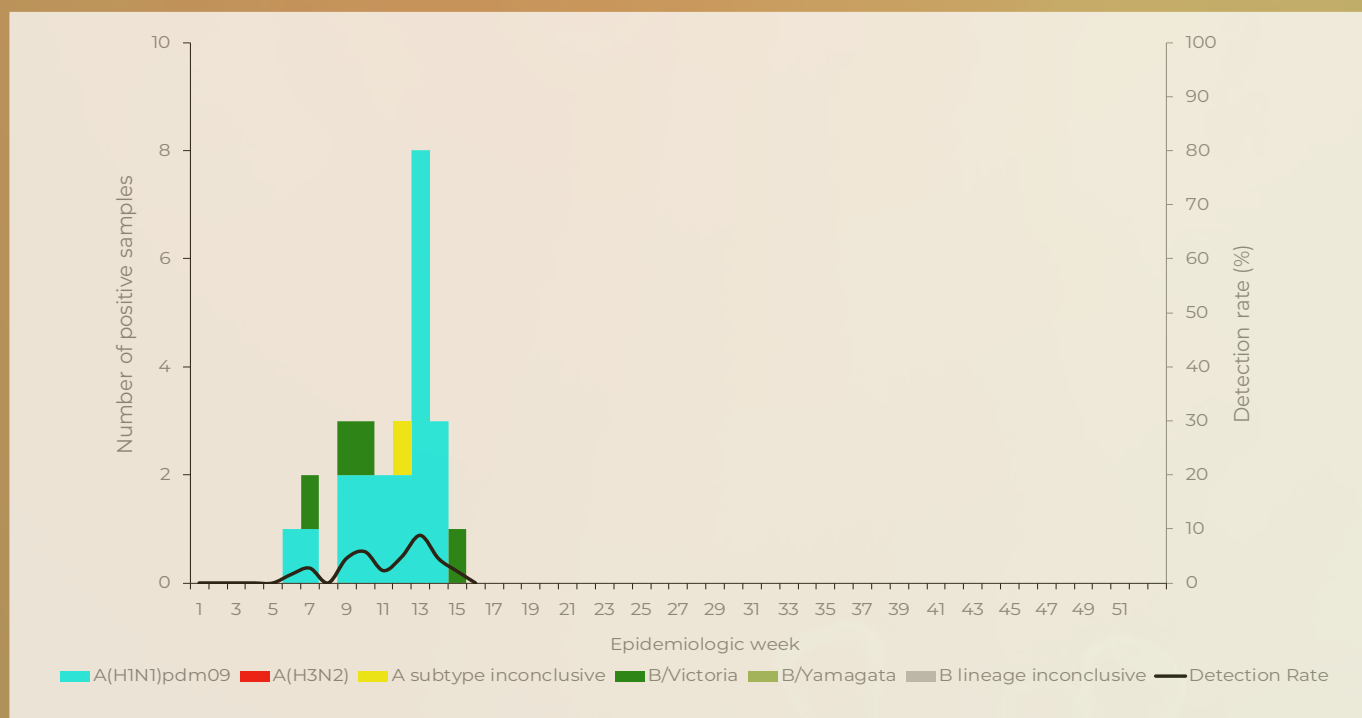
Province	SARS-CoV-2 positive	Total samples tested
Eastern Cape	0	4
Free State	0	11
Gauteng	17	95
Limpopo	0	2
Mpumalanga	0	1
North West	0	0
Northern Cape	0	2
Western Cape	4	67
Total:	21	182

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

Figure 7. 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

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	356
Helen Joseph-Rahima Moosa (GP)	0	0	0	0	0	0	538
Klerksdorp-Tshepong (NW)	0	0	0	0	0	0	361
Mpumalanga - Matikwana (MP)	0	0	0	0	0	0	149
Mitchell's Plain (WC)	19	0	0	2	0	0	244
Red Cross (WC)	2	0	1	2	0	0	547
Total:	21	0	1	4	0	0	2 195

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

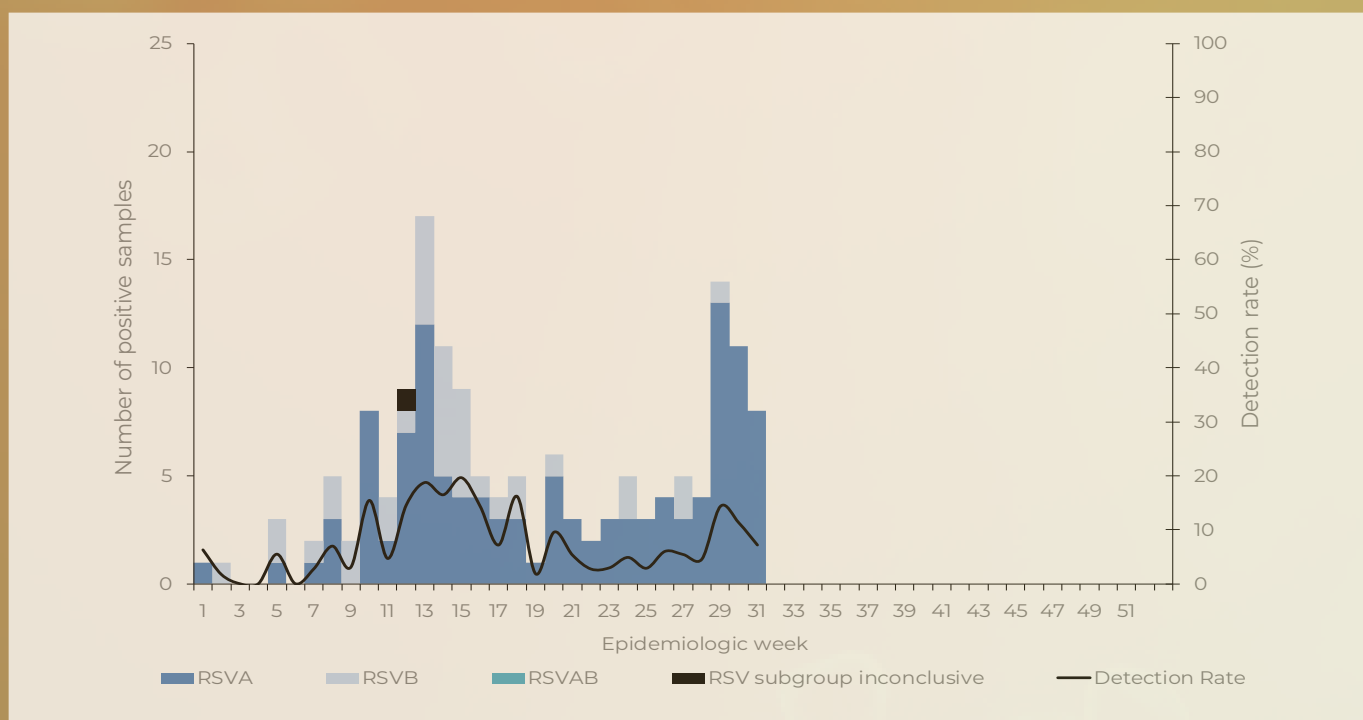
Inconclusive: insufficient viral load in sample and unable to characterise further

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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

Hospital (Province)	RSVA	RSVB	RSVAB	RSVB subgroup inconclusive	Total samples
Edendale (KZ)	2	9	0	1	356
Helen Joseph-Rahima Mooas (GP)	35	10	0	0	538
Klerksdorp-Tshepong (NW)	2	0	0	0	361
Mpumalanga - Matikwana (MP)	0	0	0	0	149
Red Cross (WC)	6	0	0	0	244
Mitchells Plain (WC)	72	18	0	3	547
Total:	117	37	0	1	2 195

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

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NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

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

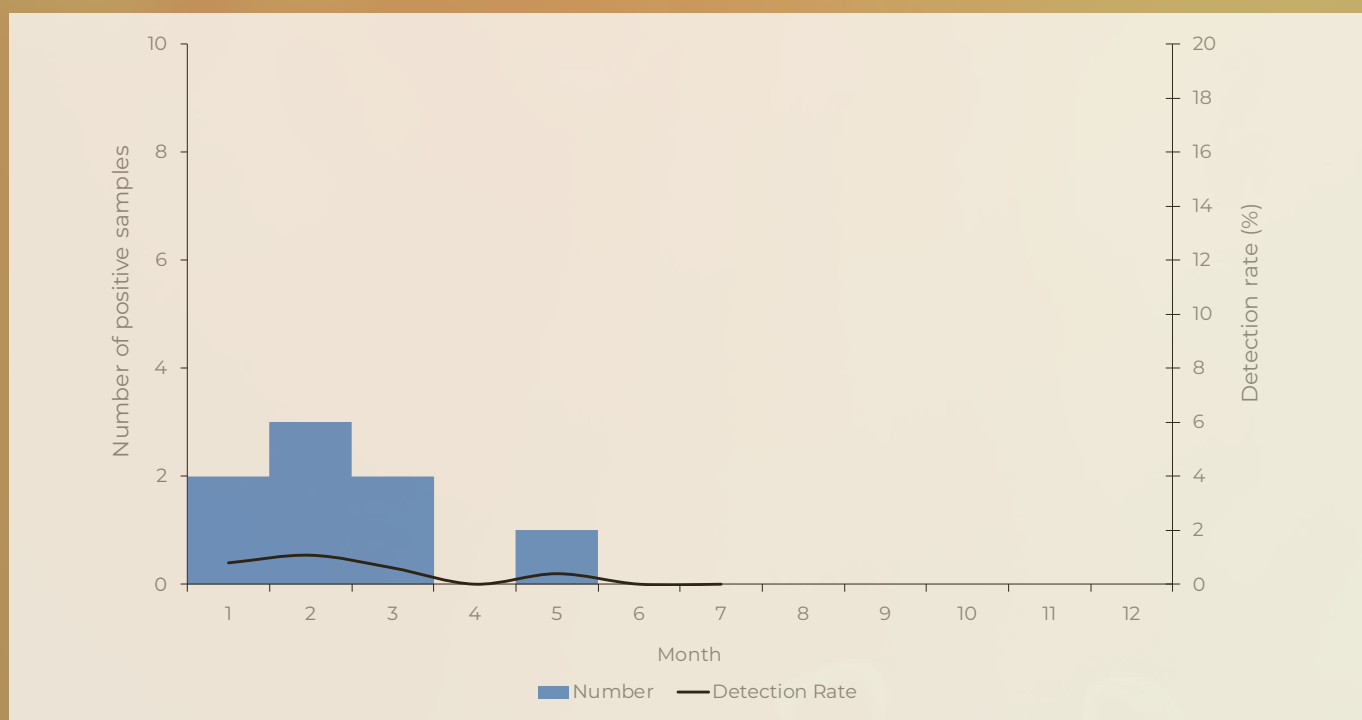


Table 9. Cumulative number of *B. pertussis* identified and total number of samples tested by hospital and province

Hospital (Province)	<i>B. pertussis</i> Positive**	Total samples
Edendale (KZ)	1	356
Helen Joseph-Rahima Moosa (GP)	1	551
Klerksdorp-Tshepong (NW)	1	369
Mapulaneng-Matikwana (MP)	0	149
Mitchell's Plain (WC)	4	244
Red Cross (WC)	1	547
Total:	8	2216

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

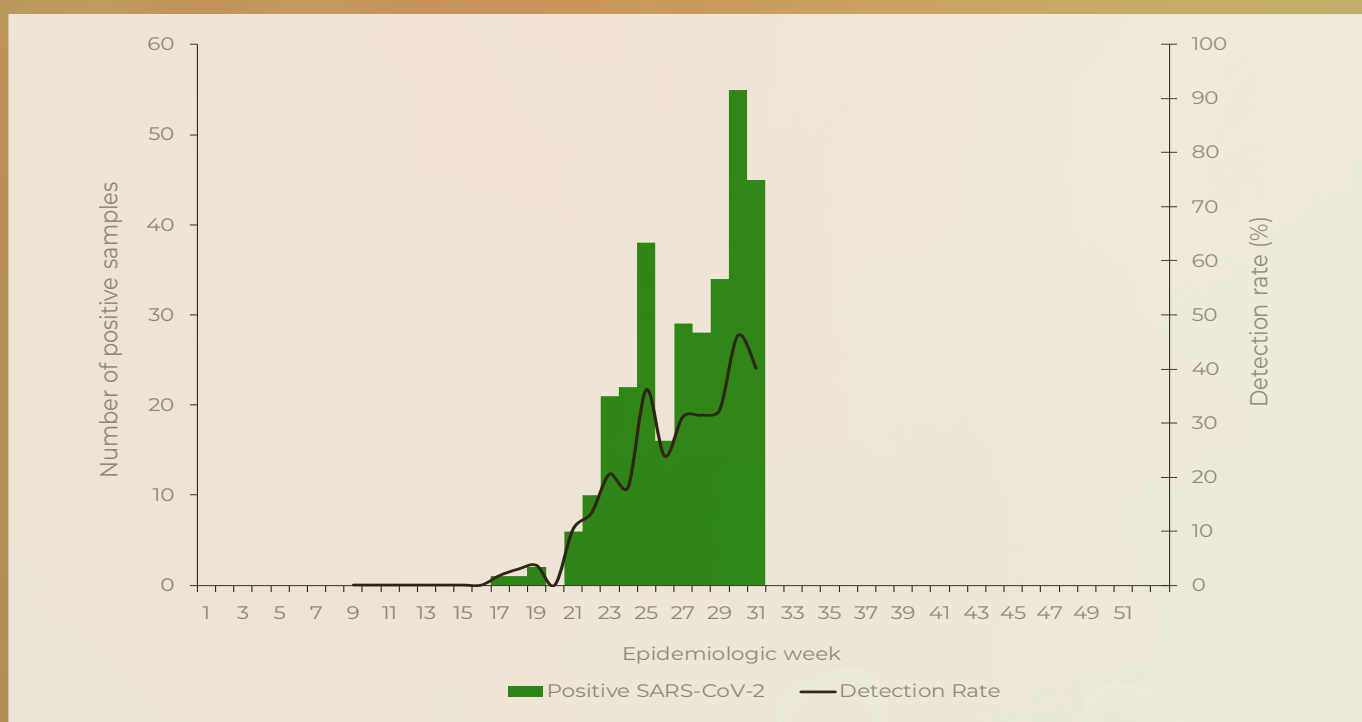
**31 cases met the suspected pertussis case definition but did not meet Pneumonia Surveillance case definition. These are not included in the table and epidemiologic curve.

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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)	61	286
Helen Joseph-Rahima Moosa (GP)	102	419
Klerksdorp-Tshepong (NW)	80	295
Mapulaneng-Matikwana (MP)	3	101
Mitchell's Plain (WC)	41	198
Red Cross (WC)	21	405
Total:	308	1704

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

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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 - 2 August 2020

Characteristic	Influenza -like illness (ILI), public sector, n =89 (%)	Pneumonia surveillance, n=308 (%)
Age group		
0-9	17/89 (19)	26/308 (8)
10-19	12/89 (13)	3/308 (1)
20-29	25/89 (28)	20/308 (6)
30-39	16/89 (18)	49/308 (16)
40-49	11/89 (12)	45/308 (15)
50-59	5/89 (6)	76/308 (25)
60-69	3/89 (3)	61/308 (20)
70-79	0/89 (0)	26/308 (8)
≥80	0/89 (0)	3/308 (1)
Sex-female	57/87 (60)	193/308 (63)
Province*		
Gauteng	N/A	102/308 (33)
KZN	17/89 (19)	63/308 (20)
Mpumalanga	N/A	3/308 (1)
North West	15/89 (17)	81/308 (26)
Western Cape	57/89 (64)	62/308 (20)
Race		
Black	41/79 (52)	211/257 (82)
Coloured	38/79 (48)	30/257 (12)
Asian/Indian	0/79 (0)	14/257 (5)
Other	0/79 (0)	2/257 (<1)
Presentation		
Fever	77/79 (97)	157/254 (62)
Cough	78/79 (99)	253/254 (99)
Shortness of breath	8/79 (10)	198/254 (78)
Tight chest	17/79 (22)	127/254 (50)
Diarrhoea	2/79 (3)	14/254 (6)

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SUMMARY OF LABORATORY-CONFIRMED SARS-CoV-2 CASES

Characteristic	Influenza -like illness (ILI), public sector, n =89 (%)	Pneumonia surveillance, n=308 (%)
Underlying conditions		
Hypertension	3/79 (4)	77/254 (30)
Cardiac	0/79 (0)	6/254 (2)
Respiratory	1/79 (1)	14/254 (6)
Diabetes	1/79 (1)	53/254 (21)
Cancer	0/79 (0)	1/254 (<1)
Tuberculosis	0/79 (0)	3/254 (1)
Other**	4/79 (5)	51/254 (20)
HIV-infection	6/77 (8)	56/234 (24)
Management		
Oxygen therapy	0/76 (0)	111/179 (62)
ICU admission	N/A	8/179 (4)
Ventilation	N/A	4/179 (2)
Outcome***		
Died	0/72(0)	17/166 (10)

* ILI surveillance not conducted in Gauteng & Mpumalanga provinces

** 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 17 patients who died, three were in the 30-40 year age group, seven in the 41-59 year age group, and seven were ≥60 years; 11/17 (65%) were female. All had underlying medical conditions