WEEKLY RESPIRATORY PATHOGENS SURVEILLANCE REPORT

NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

SOUTH AFRICA | WEEK 33 2020

CONTENTS

CUMULATIVE DATA FROM

01 JANUARY 2020 ▶ **16 AUGUST 2020**

HIGHLIGHTS: WEEK 33

The 2020 influenza season has not yet started. Only one detection of influenza A(H1N1)pdm09 has been made in week 24 (week starting 8 June 2020), since the localised outbreak of influenza A(H1N1) pdm09 and to a lesser extent influenza B(Victoria) in the Western Cape Province, in the first three months of the year.

Although the 2020 RSV season has not started, with only sporadic detections since mid April, there has been a moderate increase in detection since week 29 (week ending 19 July) in the pneumonia surveillance programme and to a lesser extent in the ILI programme.

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

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 (≥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
***INF: influenza virus; RSV: respiratory syncytial virus; BP: *Bordetella pertussis*
****SARS-CoV-2: Severe acute respiratory syndrome coronavirus 2

Data are provisional as reported to date (Data for this report drawn on 19/08/2020). Number of consultations/specimens are reported/analysed by date of consultation/specimen collection.

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, to date, specimens from 919 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 314 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. (Figure4 and Table4).

Pneumonia surveillance: Since the beginning of 2020, specimens from 2454 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 since week 29 (week ending 19 July) in the pneumonia surveillance programme and to a lesser extent in the ILI programme.

ILI programme: In 2020 to date, 919 specimens were tested and RSV was detected in specimens of 15 (1.6%) patients.

Viral Watch programme: During the same period, 2 314 specimens were tested and RSV has not been detected.

Pneumonia surveillance: Since the beginning of 2020, 2454 specimens were tested and RSV was detected in specimens of 180 (7%) 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: In 2020 to date, specimens from 685 patients were tested and SARS-CoV-2 was detected in 104 (15%) patients.

Viral Watch programme: In 2020 to date, specimens were tested from 212 patients and SARS-CoV-2 was detected in 23 (11%) patients.

Pneumonia surveillance: In 2020 to date, specimens from 1944 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 376 (19%) patients.

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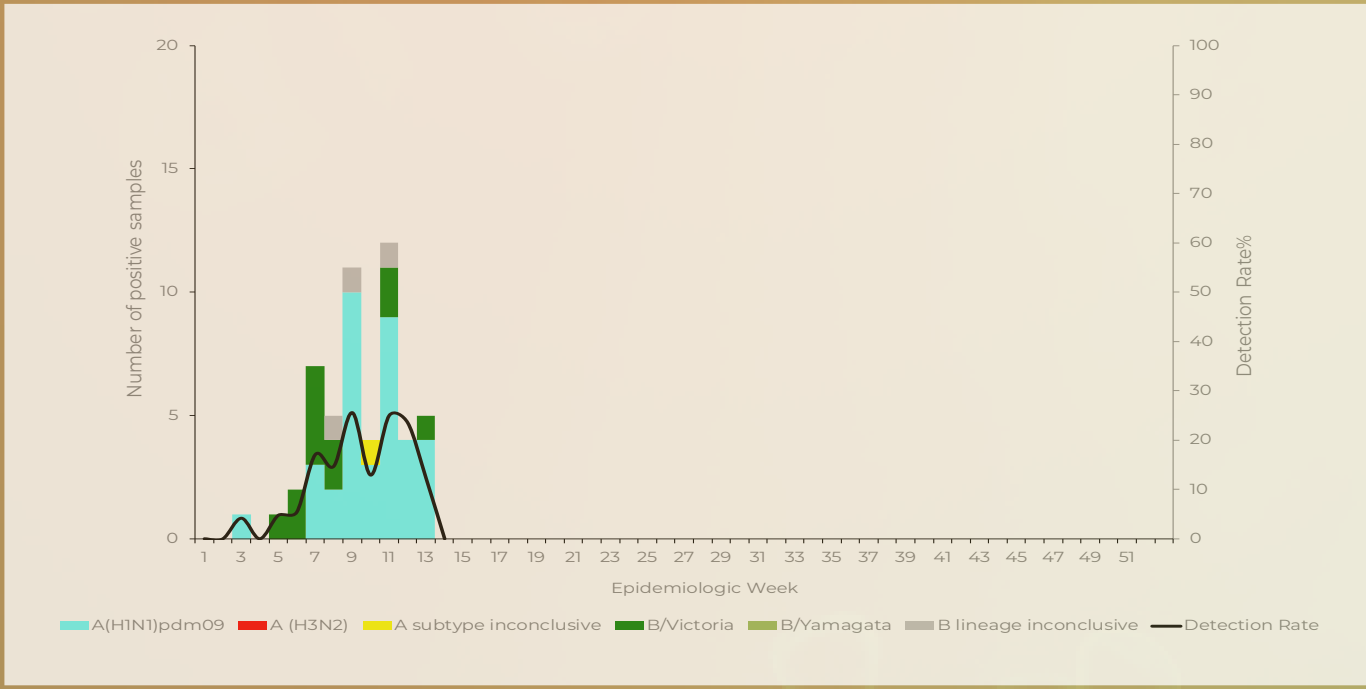
INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE PRIMARY HEALTH CARE CLINICS

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



*Specimens from patients with influenza-like illnesses at 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

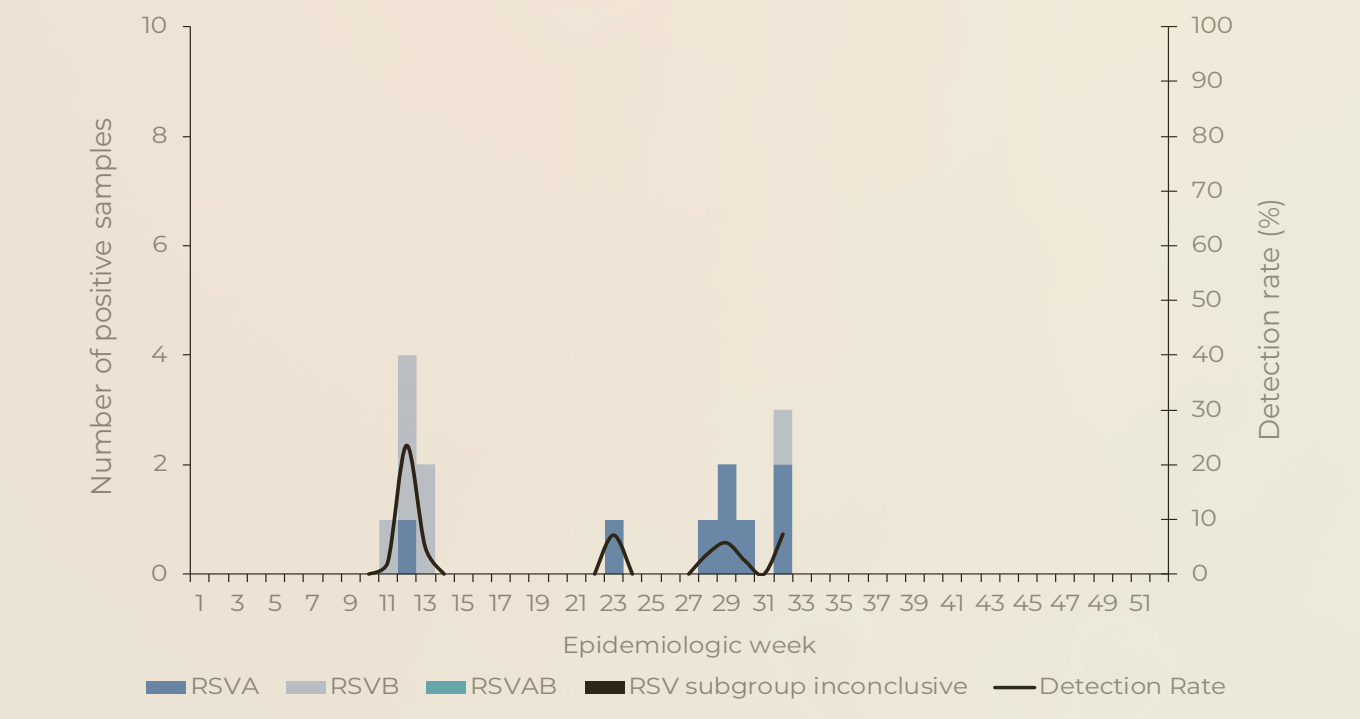
Clinic (Province)	A(H1N1) pdm09	A(H3N2)	A subtype inconclusive	B/Victoria	B/ Yamagata	B lineage inconclusive	Total samples
Eastridge (WC)	33	0	1	12	0	3	379
Edendale Gateway (KZ)	0	0	0	0	0	0	124
Jouberton (NW)	0	0	0	0	0	0	189
Mitchell's Plain (WC)	3	0	0	0	0	0	227
Total:	**36**	**0**	**1**	**12**	**0**	**3**	**919**

KZ: KwaZulu-Natal; NW: North West; WC: Western Cape
Inconclusive: insufficient viral load in sample and unable to characterise further

Data are provisional as reported to date (Data for this report drawn on 19/08/2020). Number of consultations/specimens are reported/analysed by date of consultation/specimen collection.

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

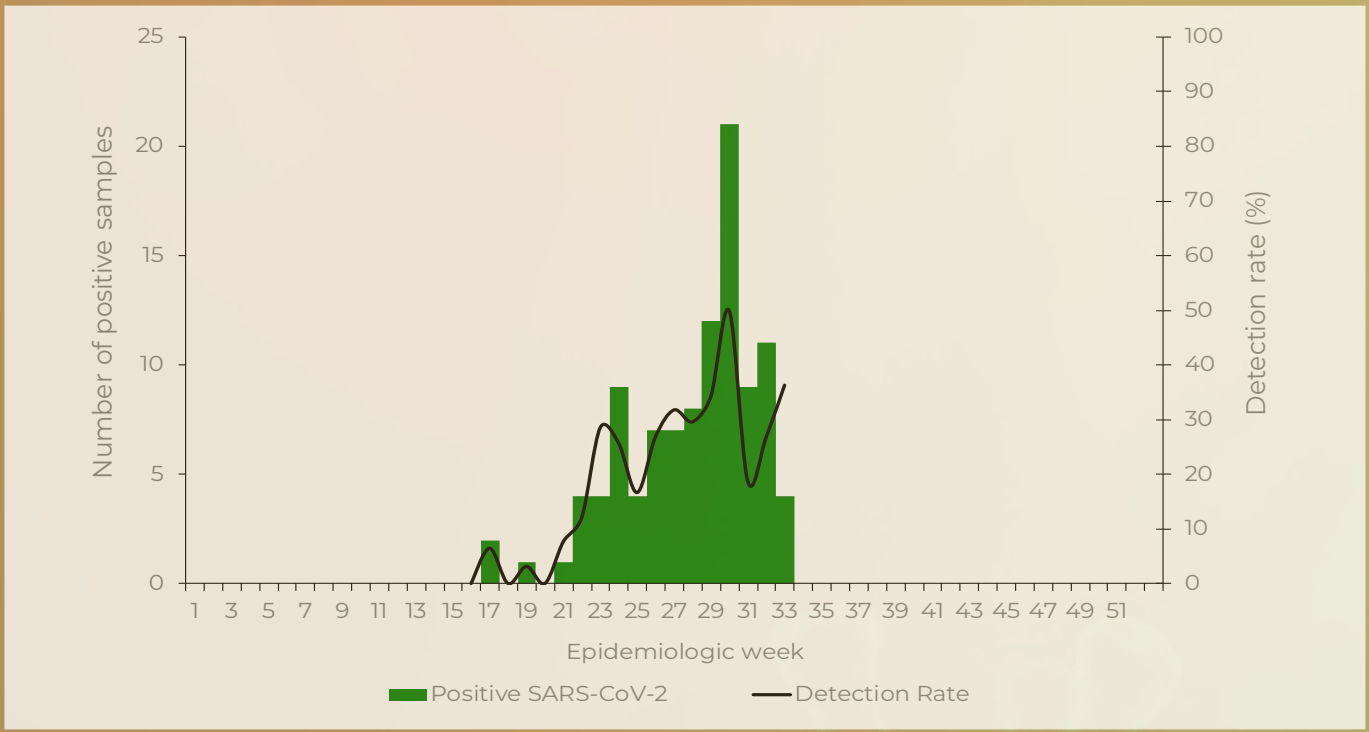
Clinic (Province)	RSVA	RSVB	RSVAB	RSV subgroup inconclusive	Total samples
Eastridge (WC)	6	2	0	0	379
Edendale Gateway (KZ)	1	5	0	0	124
Jouberton (NW)	0	0	0	0	189
Mitchell's Plain (WC)	1	0	0	0	227
Total:	**8**	**7**	**0**	**0**	**919**

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

Data are provisional as reported to date (Data for this report drawn on 19/08/2020). Number of consultations/specimens are reported/analysed by date of consultation/specimen collection.

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

Figure 3. 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 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
Eastridge (WC)	23	276
Edendale Gateway (KZ)	19	74
Jouberton (NW)	26	140
Mitchell's Plain (WC)	36	195
Total:	**104**	**685**

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

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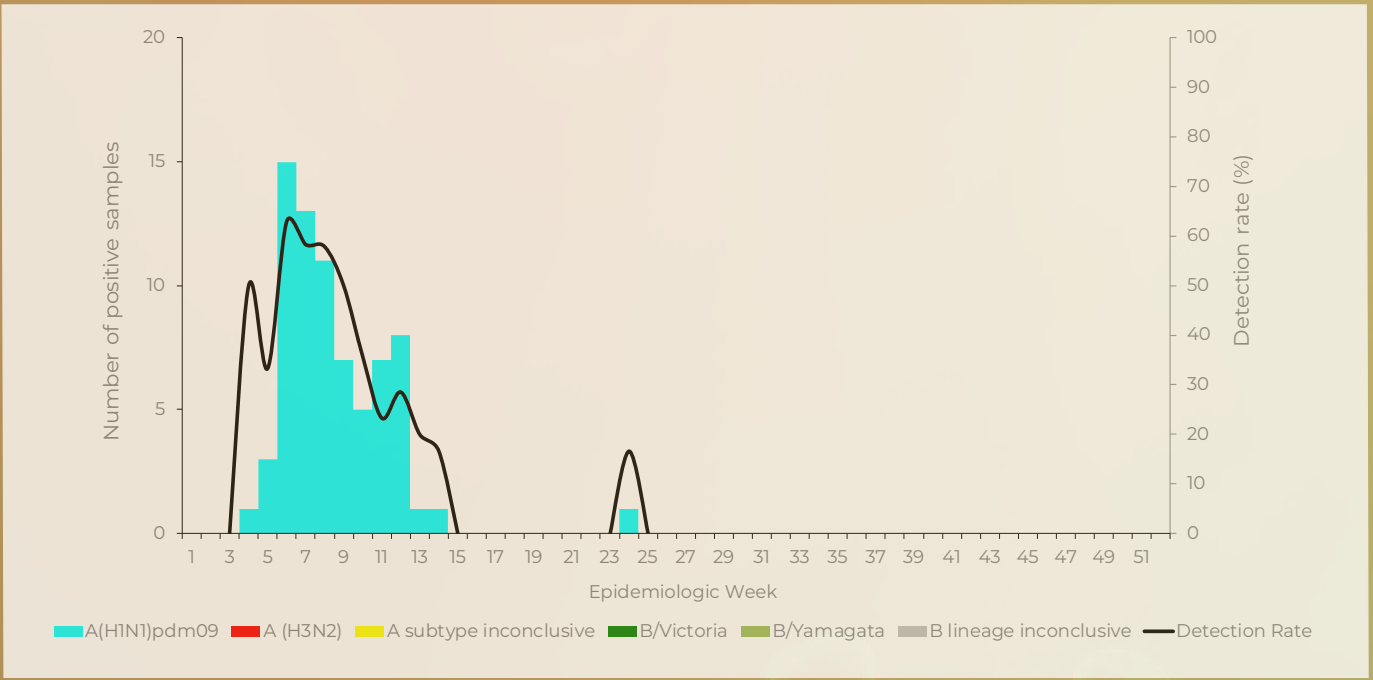
INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

Figure 4. 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	4
Free State	0	0	0	0	0	0	11
Gauteng	1	0	0	0	0	0	126
Limpopo	0	0	0	0	0	0	3
Mpumalanga	0	0	0	0	0	0	7
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	159
Total:	**76**	**0**	**0**	**0**	**0**	**0**	**314**

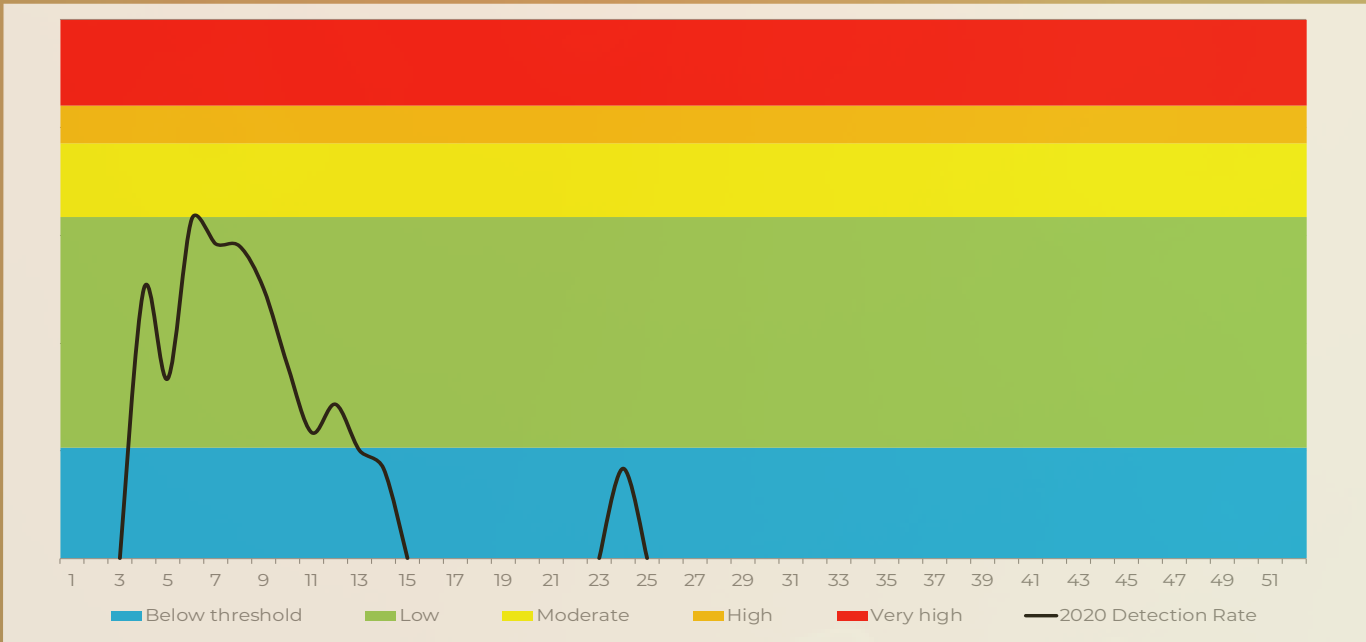
Inconclusive: insufficient viral load in sample and unable to characterise further

From 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-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

Figure 5. ILI surveillance (Viral Watch) percentage influenza detections and epidemic thresholds*



*Thresholds based on 2010-2019 data

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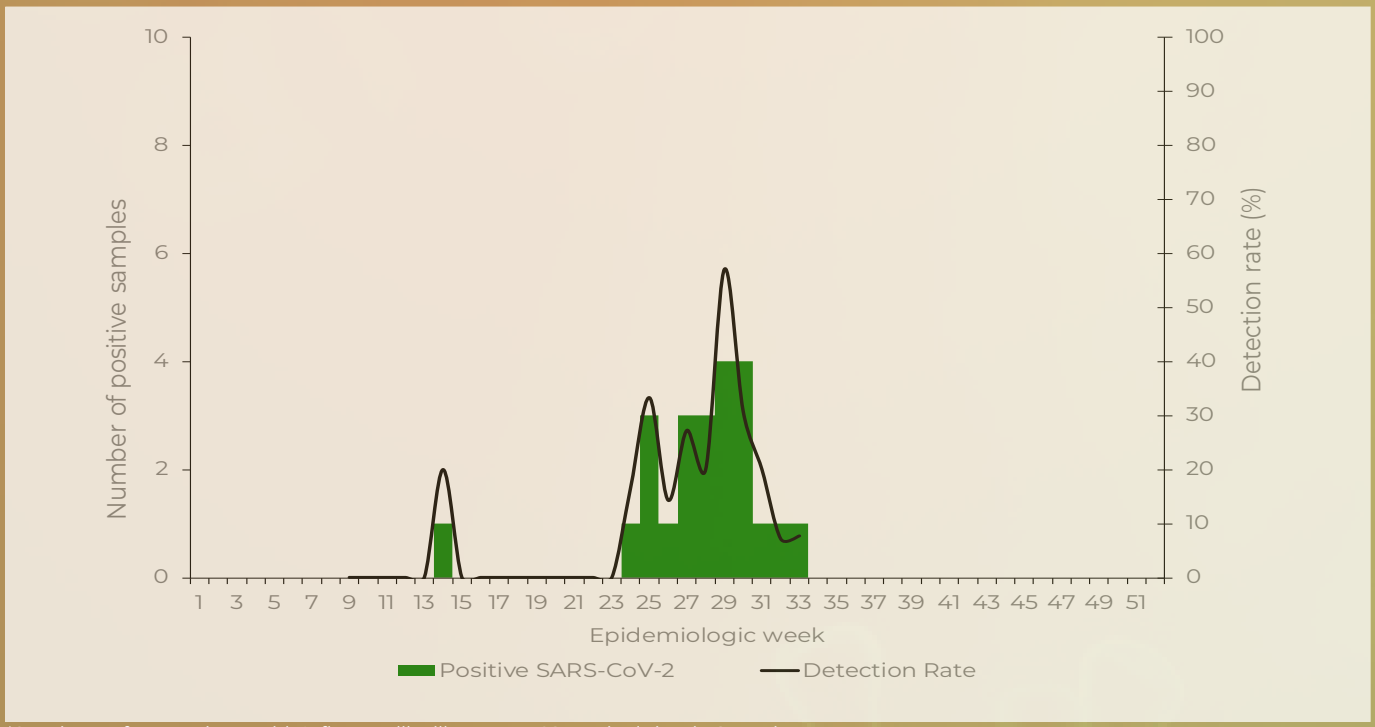
INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE: VIRAL WATCH

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

Province	SARS-CoV-2 positve	Total samples tested
Eastern Cape	0	4
Free State	0	11
Gauteng	17	117
Limpopo	0	2
Mpumalanga	1	5
North West	0	0
Northern Cape	0	2
Western Cape	5	71
Total:	**23**	**212**

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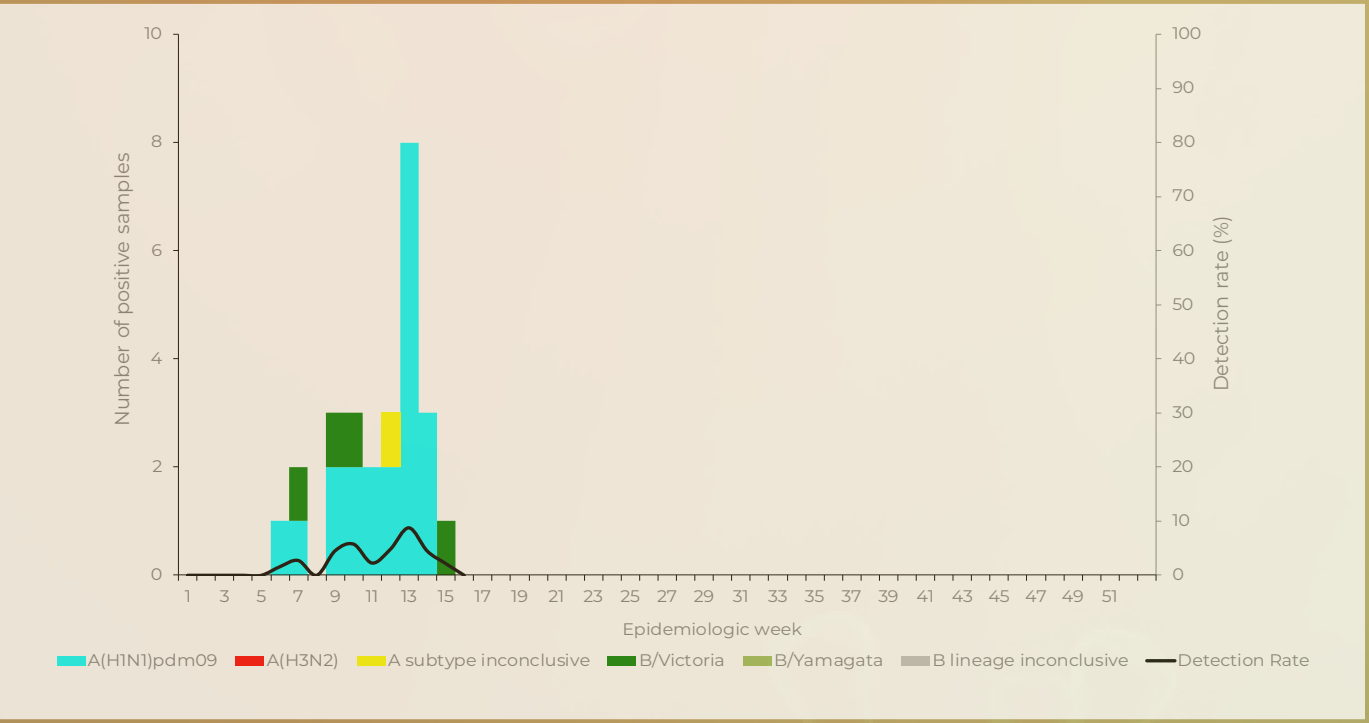
NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

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 6. Cumulative number of identified influenza subtype and lineage and total number of samples tested by hospital

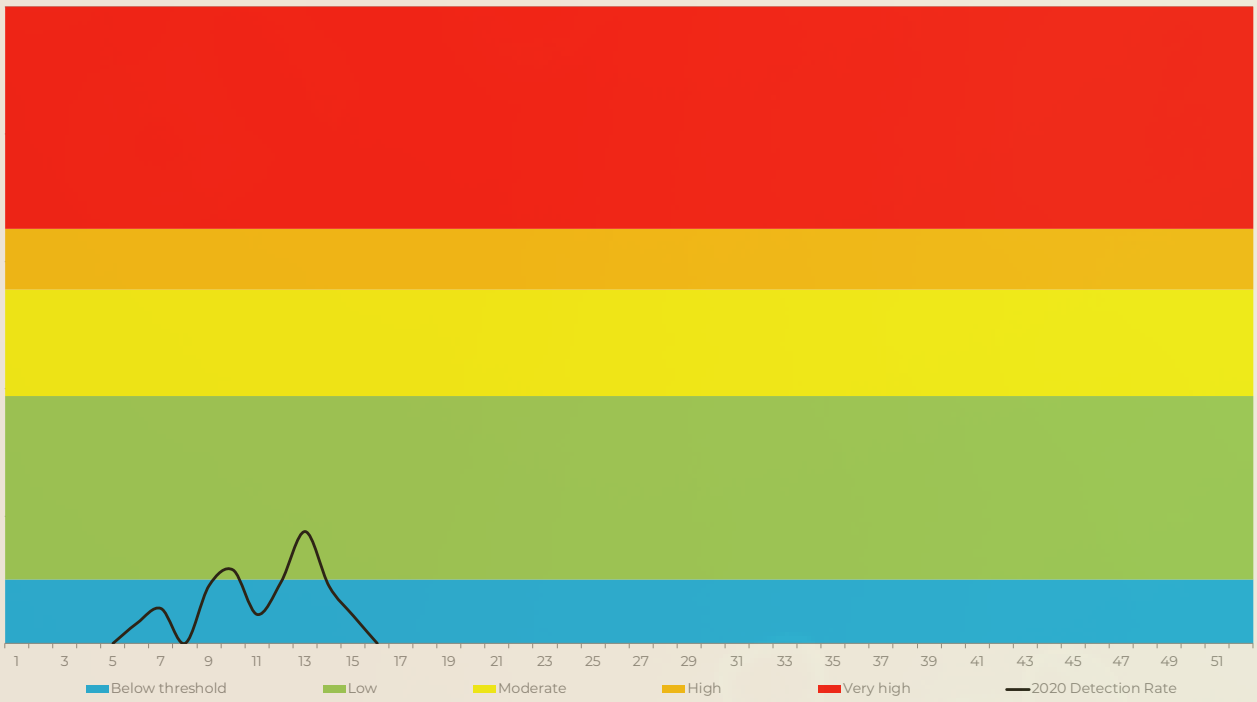
Hospital (Province)	A(H1N1) pdm09	A(H3N2)	A subtype inconclusive	B/ Victoria	B/ Yamagata	B lineage inconclusive	Total samples
Edendale (KZ)	0	0	0	0	0	0	401
Helen Joseph-Rahima Moosa (GP)	0	0	0	0	0	0	591
Klerksdorp-Tshepong (NW)	0	0	0	0	0	0	427
Mpumalanga - Matikwana (MP)	0	0	0	0	0	0	166
Mitchell's Plain (WC)	19	0	0	2	0	0	266
Red Cross (WC)	2	0	1	2	0	0	603
Total:	**21**	**0**	**1**	**4**	**0**	**0**	**2 454**

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

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

NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

Figure 8. National syndromic surveillance for pneumonia percentage influenza detections and epidemic thresholds*



*Thresholds based on 2010-2019 data

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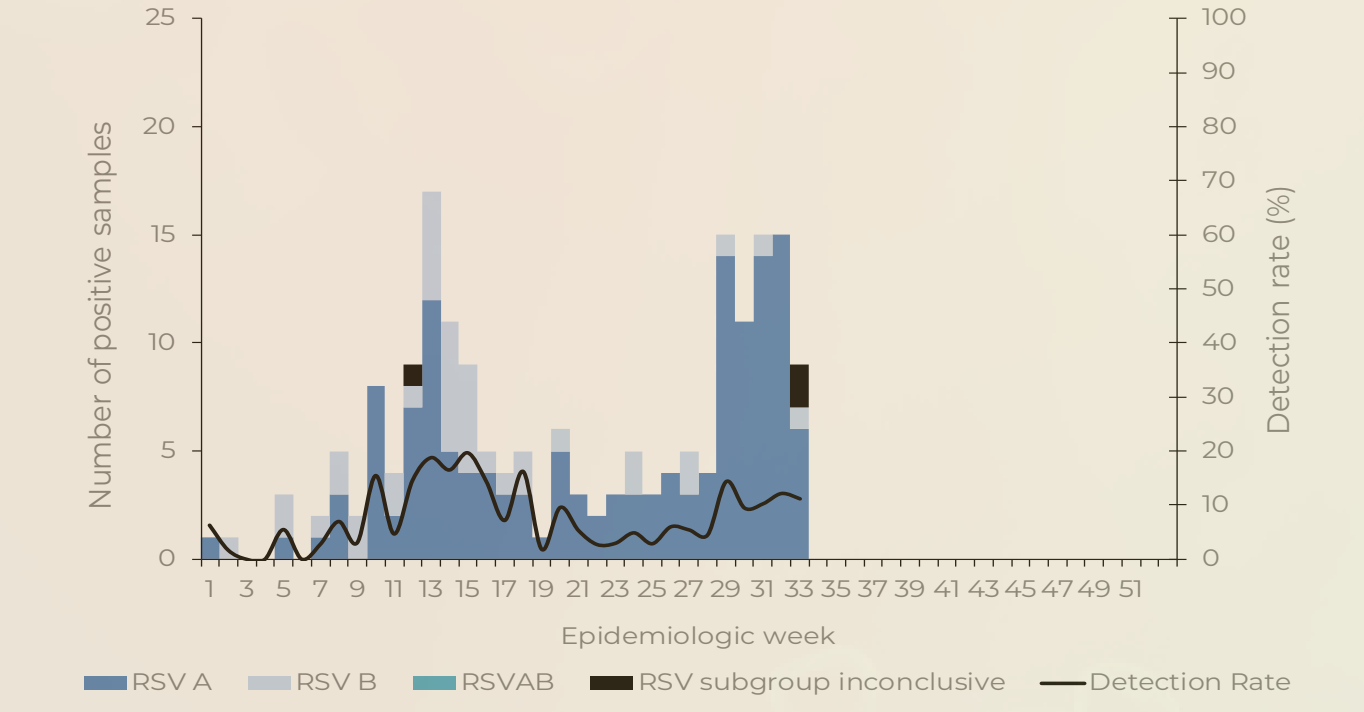
NATIONAL SYNDROMIC SURVEILLANCE FOR PNEUMONIA

Figure 9. 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

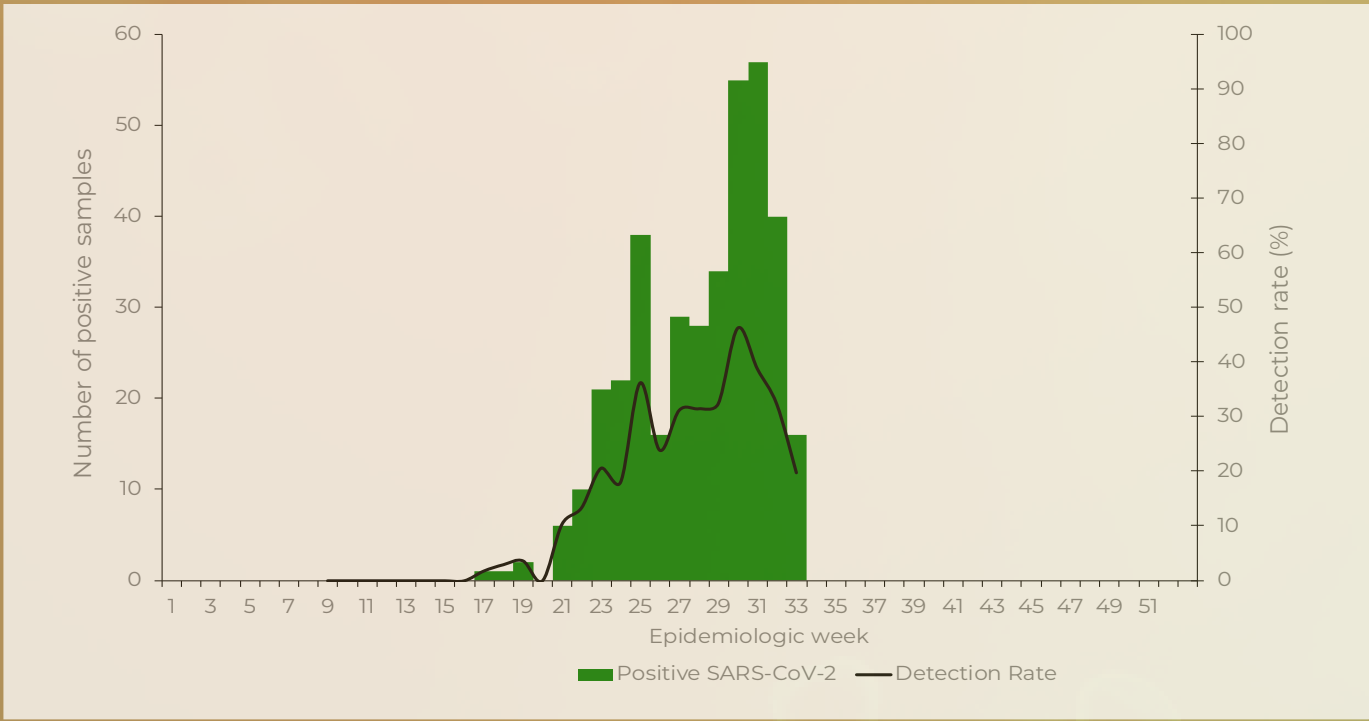
Table 7: Cumulative number of respiratory syncytial virus subgroups identified and total number of samples tested by hospital

Hospital (Province)	RSVA	RSVB	RSVAB	RSVB subgroup inconclusive	Total samples
Edendale (KZ)	2	9	0	1	401
Helen Joseph-Rahima Mooas (GP)	36	10	0	0	591
Klerksdorp-Tshepong (NW)	2	0	0	0	427
Mpumalanga - Matikwana (MP)	0	0	0	0	166
Red Cross (WC)	13	0	0	2	266
Mitchells Plain (WC)	85	20	0	0	603
Total:	**138**	**39**	**0**	**3**	**2 454**

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

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

Hospital (Province)	SARS-CoV-2 positve	Total samples tested
Edendale (KZ)	84	331
Helen Joseph-Rahima Moosa (GP)	110	461
Klerksdorp-Tshepong (NW)	112	353
Mapulaneng-Matikwana (MP)	4	118
Mitchell's Plain (WC)	44	220
Red Cross (WC)	22	461
Total:	**376**	**1 944**

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 9. Characteristics of laboratory-confirmed cases of COVID-19, enrolled in influenza-like illness (ILI) and pneumonia surveillance programmes, South Africa, 2 March 2020- 16 August 2020

Characteristic		Influenza –like illness (ILI), public sector, n =104 (%)	Pneumonia surveillance, n=376 (%)
Age group			
	0-9	19/104 (19)	28/376 (7)
	10-19	13/104 (13)	3/376 (<1)
	20-29	26/104 (26)	21/376 (6)
	30-39	24/104 (24)	53/376 (14)
	40-49	13/104 (13)	53/376 (14)
	50-59	5/104 (5)	96/376 (26)
	60-69	4/104 (4)	81/376 (22)
	70-79	0/104 (0)	35/376 (9)
	≥80	0/104 (0)	6/376 (2)
Sex-female		57/101 (57)	229/372 (62)
Province*			
	Gauteng	N/A	110/376 (29)
	KZN	19/104 (19)	84/376 (22)
	Mpumalanga	N/A	4/376 (1)
	North West	26/104 (26)	112/376 (30)
	Western Cape	59/104 (59)	66/376 (18)
Race			
	Black	57/97 (59)	286/345 (83)
	Coloured	40/97 (41)	40/345 (12)
	Asian/Indian	0/97 (0)	15/345 (4)
	Other	0/97 (0)	4/345 (1)
Presentation			
	Fever	95/97 (98)	205/347 (59)
	Cough	96/97 (99)	341/347 (98)
	Shortness of breath	16/97 (16)	271/347 (78)
	Tight chest	29/97 (30)	174/347 (50)
	Diarrhoea	6/97 (6)	21/347 (6)

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SUMMARY OF LABORATORY-CONFIRMED SARS-CoV-2 CASES

Characteristic	Influenza –like illness (ILI), public sector, n =104 (%)	Pneumonia surveillance, n=376 (%)
Underlying conditions		
Hypertension	5/97 (5)	123/347 (35)
Cardiac	0/97 (0)	8/347 (2)
Respiratory	1/97 (1)	17/347 (5)
Diabetes	1/97 (1)	79/347 (23)
Cancer	0/97 (0)	1/347 (<1)
Tuberculosis	0/97 (0)	4/347 (1)
HIV-infection	10/78 (11)	76/318 (24)
Other **	4/97 (4)	61/347 (18)
Management		
Oxygen therapy	0/88 (0)	158/240 (66)
ICU admission	N/A	10/240 (4)
Ventilation	N/A	6/240 (3)
Outcome* **		
Died	0/86(0)	28/129 (12)

* 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 28 patients who died, four were in the 30-40 year age group, 12 in the 41-59 year age group, and 12 were ≥60 years; 20/28 (71%) were female. All except four were known to have underlying medical conditions

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