WEEKLY RESPIRATORY PATHOGENS SURVEILLANCE REPORT

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

SOUTH AFRICA | WEEK 39 2020

CONTENTS

CUMULATIVE DATA FROM

01 JANUARY 2020 — 27 SEPTEMBER 2020

HIGHLIGHTS: WEEK 39

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.

Since the last report 5 additional patients tested positive for SARS-CoV-2 of which 3 were detected in the current reporting week (week39) in SARI (1), ILI (1) and Viral Watch (1). To date, 581 cases have been detected from all surveillance programmes.

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 30/09/2020). 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 was detected in Gauteng province.

ILI programme: In 2020 to date, specimens from 1 120 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 351 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).

Pneumonia surveillance: Since the beginning of 2020, specimens from 2 994 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, 1 120 specimens were tested and RSV was detected in specimens of 36 (3%) patients.

Viral Watch programme: During the same period, 351 specimens were tested and RSV has not been detected.

Pneumonia surveillance: Since the beginning of 2020, 2 994 specimens were tested and RSV was detected in specimens of 291 (10%) 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 886 patients were tested and SARS-CoV-2 was detected in 126 (14%) patients.

Viral Watch programme: In 2020 to date, specimens were tested from 247 patients and SARS-CoV-2 was detected in 34 (14%) patients.

Pneumonia surveillance: In 2020 to date, specimens from 2 471 patients with severe respiratory illness (SRI) were tested and SARS-CoV-2 was detected in 421 (17%) patients.

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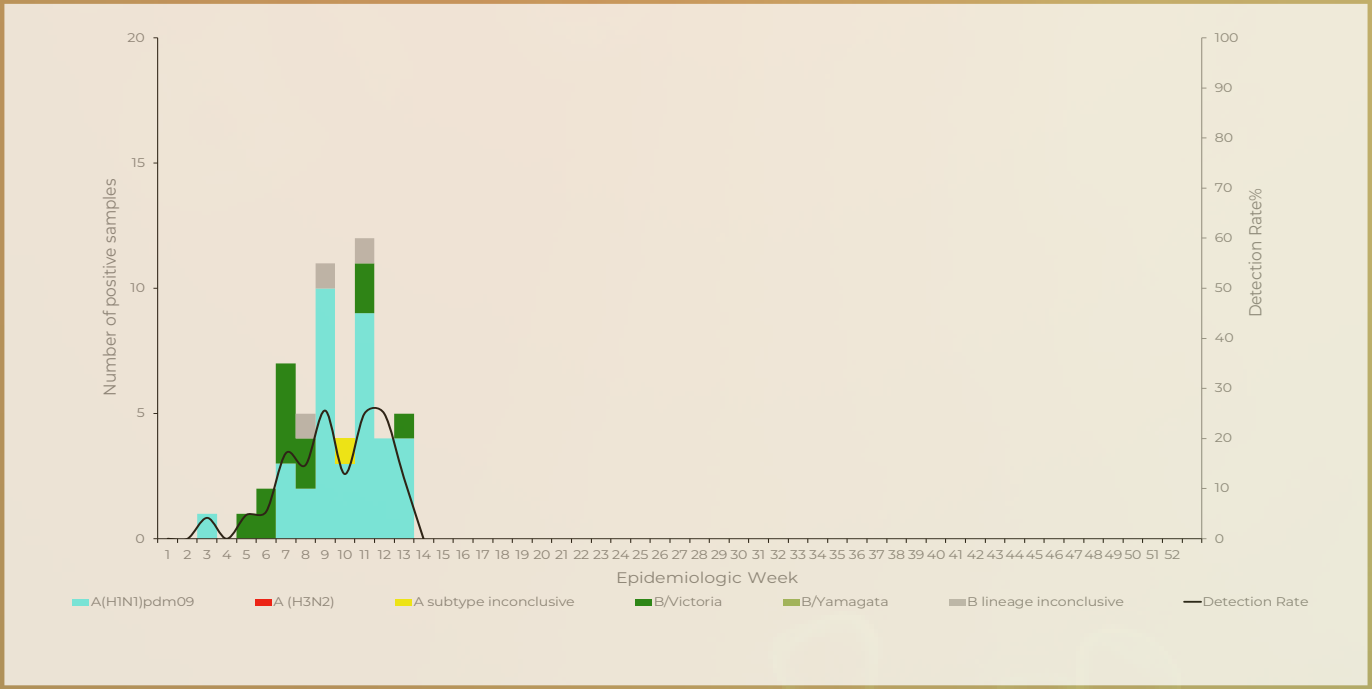
INFLUENZA-LIKE ILLNESS (ILI) SURVEILLANCE PRIMARY HEALTH CARE CLINICS

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

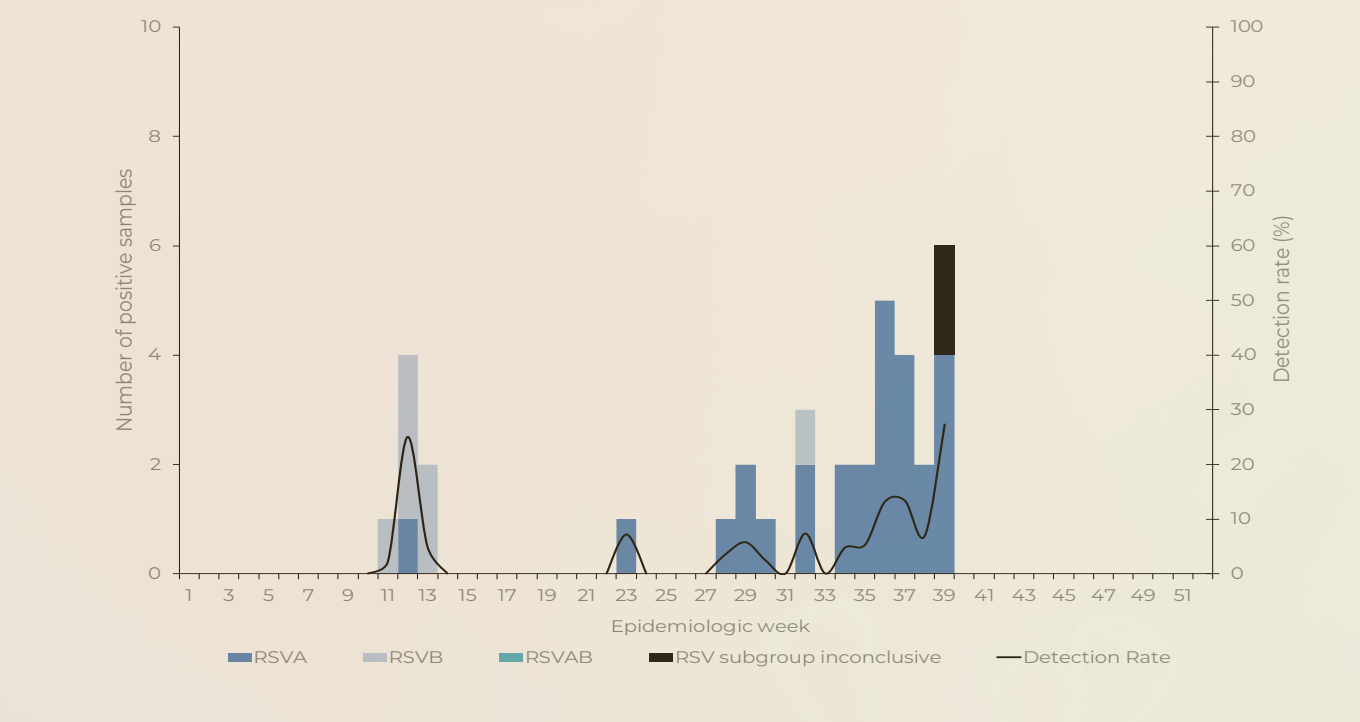
Table 1. Cumulative number of influenza subtype and lineage and total number of samples tested by clinic and province

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	458
Edendale Gateway (KZ)	0	0	0	0	0	0	138
Jouberton (NW)	0	0	0	0	0	0	246
Mitchell's Plain (WC)	3	0	0	0	0	0	278
Total:	**36**	**0**	**1**	**12**	**0**	**3**	**1 120**

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

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

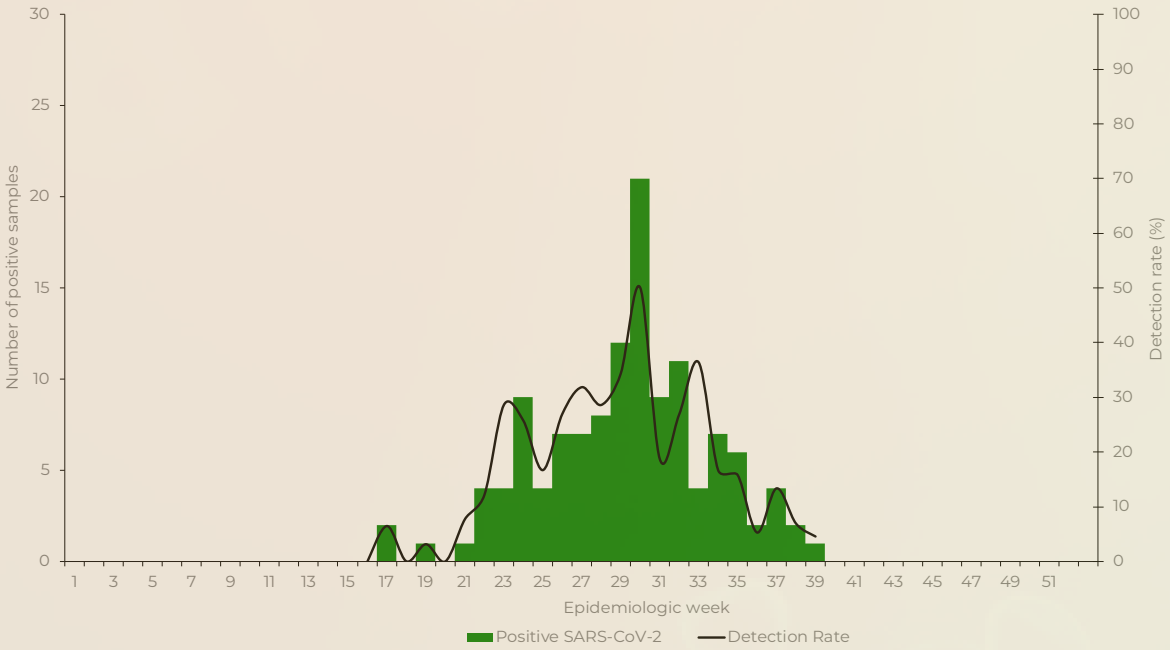
Table 2. Cumulative number of respiratory syncytial virus subgroups identified and total number of samples tested by clinic and province

Clinic (Province)	RSVA	RSVB	RSVAB	RSV subgroup inconclusive	Total samples
Eastridge (WC)	17	2	0	0	458
Edendale Gateway (KZ)	1	5	0	0	138
Jouberton (NW)	1	0	0	2	246
Mitchell's Plain (WC)	8	0	0	0	278
Total:	**27**	**7**	**0**	**2**	**1 120**

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-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

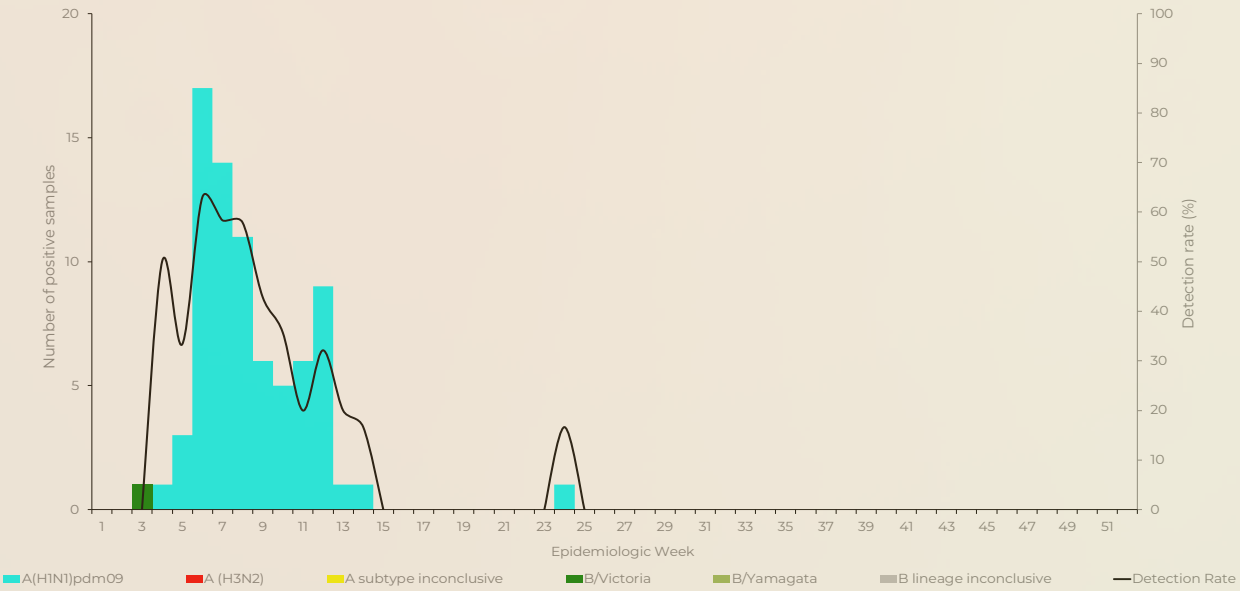
Clinic (Province)	SARS-CoV-2 positive	Total samples tested
Eastridge (WC)	26	355
Edendale Gateway (KZ)	21	88
Jouberton (NW)	41	197
Mitchell's Plain (WC)	38	246
Total:	**126**	**886**

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

Data are provisional as reported to date (Data for this report drawn on 30/09/2020). Number of consultations/specimens are reported/analysed by date of consultation/specimen collection.

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	12
Gauteng	2	0	0	0	0	0	154
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	74	1	0	1	0	0	167
Total:	**76**	**1**	**0**	**1**	**0**	**0**	**351**

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-LIKE ILLNESS (ILI) SURVEILLANCE VIRAL WATCH

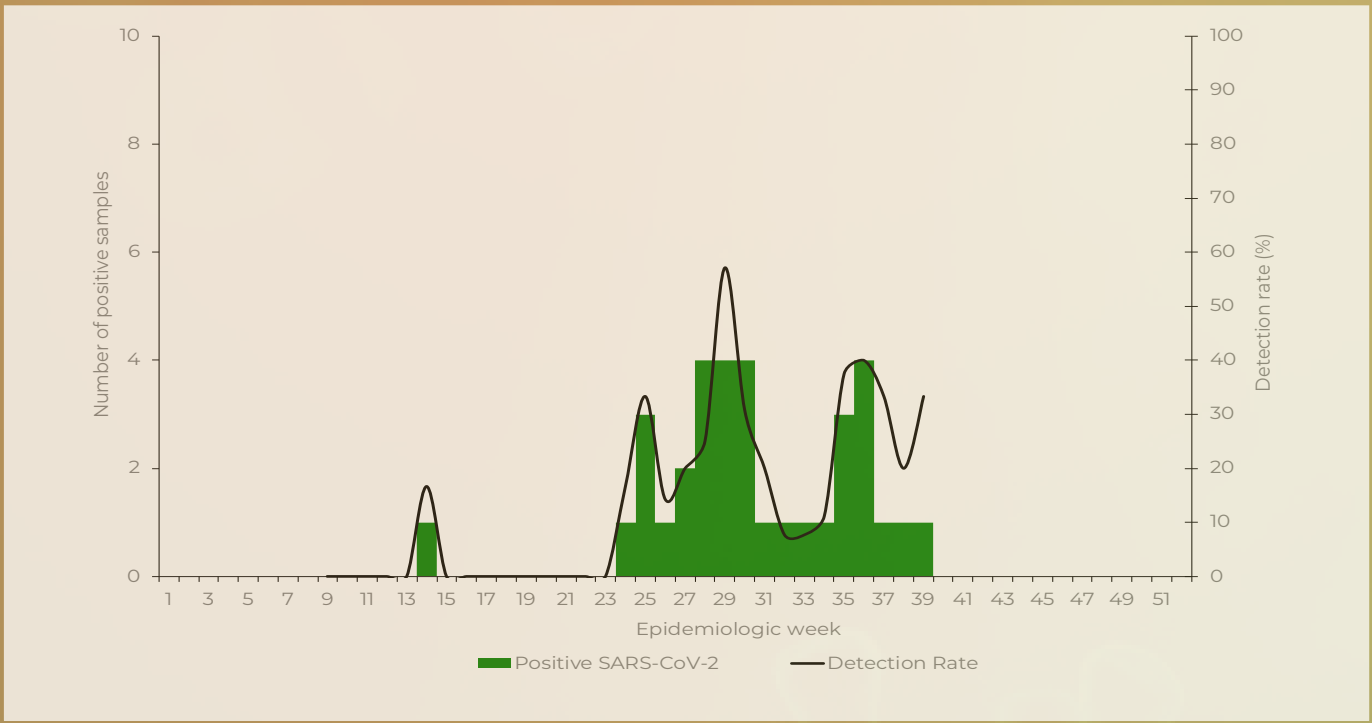
Figure 5. ILI surveillance (Viral Watch) percentage influenza detections and epidemic thresholds*

*Thresholds based on 2010-2019 data

Data are provisional as reported to date (Data for this report drawn on 30/09/2020). Number of consultations/specimens are reported/analysed by date of consultation/specimen collection.

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

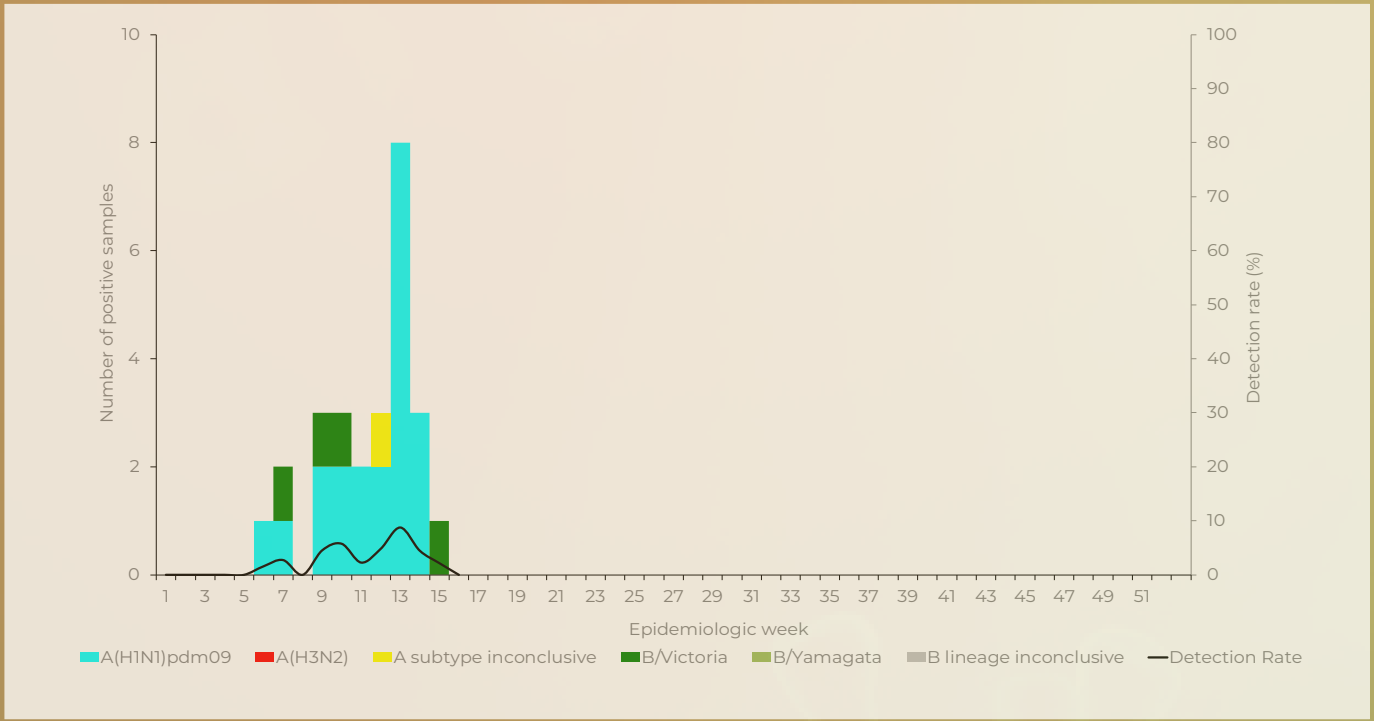
Table 5. Cumulative number of SARS-CoV-2 identified and total number of samples tested by province

Province	SARS-CoV-2 positve	Total samples tested
Eastern Cape	0	3
Free State	0	12
Gauteng	25	143
Limpopo	0	2
Mpumalanga	1	5
North West	0	0
Northern Cape	0	2
Western Cape	8	80
Total:	**34**	**247**

Data are provisional as reported to date (Data for this report drawn on 23/09/2020). Number of consultations/specimens are reported/analysed by date of consultation/specimen collection.

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	484
Helen Joseph-Rahima Moosa (GP)	0	0	0	0	0	0	682
Klerksdorp-Tshepong (NW)	0	0	0	0	0	0	522
Mapulaneng-Matikwana (MP)	0	0	0	0	0	0	223
Red Cross (WC)	19	0	0	2	0	0	756
Mitchell's Plain (WC)	2	0	1	2	0	0	327
Total:	**21**	**0**	**1**	**4**	**0**	**0**	**2 994**

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

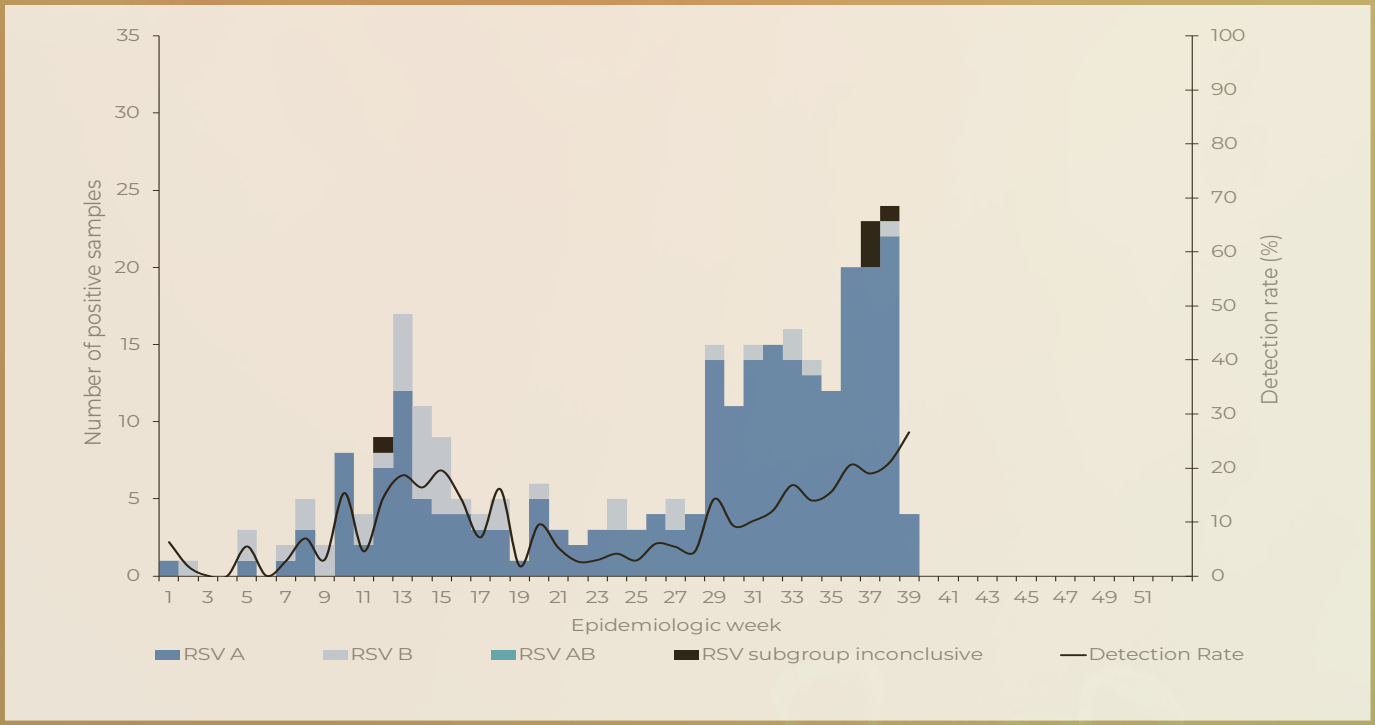
Figure 8. National syndromic surveillance for pneumonia percentage influenza detections and epidemic thresholds*

*Thresholds based on 2010-2019 data

Data are provisional as reported to date (Data for this report drawn on 30/09/2020). Number of consultations/specimens are reported/analysed by date of consultation/specimen collection.

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

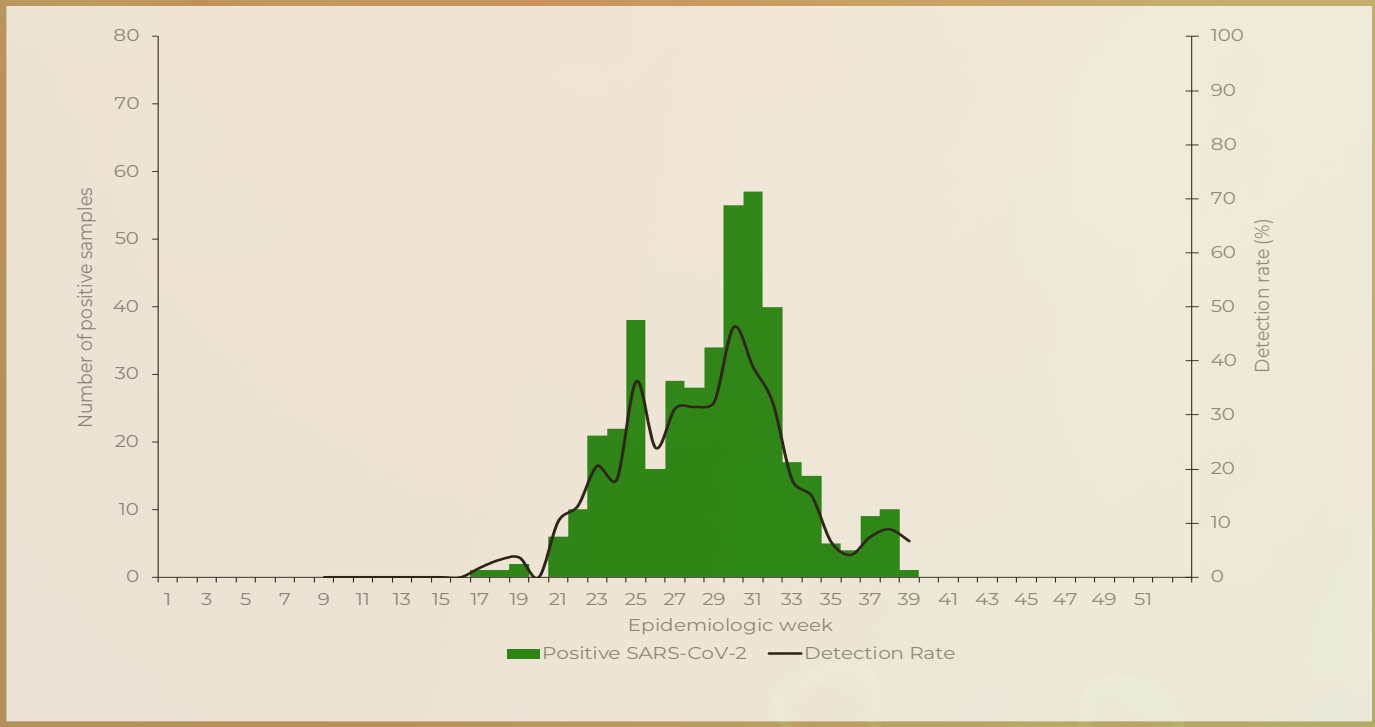
Table 7: Cumulative number of respiratory syncytial virus subgroups identified and total number of samples tested by hospital

Hospital (Province)	RSVA	RSVB	RSVAB	RSV subgroup inconclusive	Total samples
Edendale (KZ)	2	9	0	1	484
Helen Joseph-Rahima Moosa (GP)	40	10	0	0	682
Klerksdorp-Tshepong (NW)	2	0	0	1	522
Mapulaneng-Matikwana (MP)	0	0	0	0	223
Red Cross (WC)	162	23	0	2	756
Mitchell's Plain (WC)	38	0	0	1	327
Total:	**244**	**42**	**0**	**5**	**2 994**

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)	93	409
Helen Joseph-Rahima Moosa (GP)	118	547
Klerksdorp-Tshepong (NW)	123	447
Mapulaneng-Matikwana (MP)	9	174
Red Cross (WC)	27	614
Mitchell's Plain (WC)	51	280
Total:	**421**	**2 471**

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

Data are provisional as reported to date (Data for this report drawn on 30/09/2020). Number of consultations/specimens are reported/analysed by date of consultation/specimen collection.

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 - 27 September 2020

Characteristic	Influenza –like illness (ILI), public sector, n =126 (%)	Pneumonia surveillance, n=421 (%)
Age group		
0-9	21/126 (17)	34/421 (8)
10-19	12/126 (9)	4/421 (1)
20-29	60/126 (48)	83/421 (20)
40-59	23/126 (18)	161/421 (38)
60-79	10/126 (8)	131/421 (31)
≥80	0/126 (0)	8/421 (2)
Sex-female	65/126 (52)	
Province*		
Gauteng	N/A	118/421 (28)
KZN	21/126 (17)	93/421 (22)
Mpumalanga	N/A	9/421 (2)
North West	41/126 (32)	123/421 (29)
Western Cape	64/126 (51)	78/421 (19)
Race		
Black	77/122 (63)	332/412 (81)
Coloured	45/122 (37)	58/412 (14)
Asian/Indian	0/122 (0)	18/412 (4)
Other	0/122 (0)	4/412 (1)
Presentation		
Fever	120/122 (98)	248/412 (60)
Cough	121/122 (99)	410/412 (99)
Shortness of breath	26/122 (21)	331/412 (80)
Chest pain	40/122 (33)	202/412 (49)

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SUMMARY OF LABORATORY-CONFIRMED SARS-CoV-2 CASES

Diarrhoea	13/122 (11)	24/412 (6)
Characteristic	**Influenza –like illness (ILI), public sector, n =126 (%)**	**Pneumonia surveillance, n=421 (%)**
Underlying conditions		
Hypertension	8/122 (7)	53/412 (13)
Cardiac	0/122 (0)	8/412 (2)
Lung disease	0/122 (0)	1/412 (<1)
Diabetes	1/122 (1)	92/412 (22)
Cancer	0/122 (0)	1/412 (<1)
Tuberculosis	0/122 (0)	13/412 (3)
HIV-infection	14/122 (11)	83/412 (20)
Other **	4/122 (3)	72/412 (17)
Management		
Oxygen therapy	1/122 (1)	262/412 (64)
ICU admission	N/A	16/412 (4)
Ventilation	N/A	13/412 (3)
Outcome* **		
Died	0/122 (0)	51/407 (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 51 patients who died, six were in the 20-39 year age group, 17 in the 40-59 year age group, and 28 were ≥60 years; 34/51 (67%) were female. All except four were known to have underlying medical conditions

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