COVID-19 TESTING SUMMARY

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

SOUTH AFRICA | WEEK 20 2021

OVERVIEW OF REPORT

This report summarises national laboratory testing for SARS-CoV-2, the virus causing COVID-19, in South Africa. This report is based on data for specimens reported up to 22 May 2021 (Week 20 of 2021).

HIGHLIGHTS

- In the period 1 March 2020 through 22 May 2021, 11,298,963 tests (10,363,713 PCR and 935,250 antigen tests) for SARS-CoV-2 have been reported nationally.
- The number of tests reported in week 20 of 2021 (n=225,055) was similar to the previous week.
- The testing rate in week 20 was 377 per 100,000 persons; highest in the Northern Cape (905 per 100,000 persons) and lowest in Limpopo (82 per 100,000 persons).
- In week 20 the percentage testing positive was 9.9%, which was 1.4% higher than the previous week
- The percentage testing positive in week 20 was highest in the Northern Cape (25.0%), Free State (18.8%), North West (16.5%), Mpumalanga (10.9%) and Gauteng (10.8%). The percentage testing positive was <10% in all other provinces.
- In week 20, compared to the previous week, the percentage testing positive increased in the Eastern Cape, KwaZulu-Natal, North West, Gauteng, Mpumalanga, Free State and Limpopo provinces. The percentage testing positive was unchanged in the Northern Cape and Western Cape provinces.
- The number of tests reported is likely underestimated as antigen tests are increasingly being used outside of laboratory settings and results may not be reported.

Methods

Testing for SARS-CoV-2 began on 28 January 2020 at the NICD and after the first case was confirmed on 5th March 2020, testing was expanded to a larger network of private and NHLS laboratories. Laboratory testing was conducted for people meeting the case definition for persons under investigation (PUI). This definition was updated several times over the reporting period but at different times included (i) symptomatic individuals seeking testing, (ii) hospitalised individuals for whom testing was done, (iii) individuals in high-risk occupations, (iv) individuals in outbreak settings, and (v) individuals identified through community screening and testing (CST) programmes which were implemented in April 2020 and was discontinued from the week beginning 17th May. CST was implemented differently in different provinces, and ranged from mass screening approaches (including asymptomatic individuals) to screening of individuals in contact with a confirmed case to targeted testing of clusters of cases. Respiratory specimens were submitted to testing laboratories. Testing was performed using reverse transcriptase real-time PCR, which detects SARS-CoV-2 viral genetic material. Laboratories used any one of several in-house and commercial PCR assays to test for the presence of SARS-CoV-2 RNA. Testing for SARS-CoV-2 using rapid antigen-based tests was implemented towards the end of October 2020. Results of reported rapid antigen-based tests are included in this report, however data are incomplete and efforts are ongoing to improve data completeness.

Test results were automatically fed into a data warehouse after result authorisation. We excluded specimens collected outside South Africa and duplicate entries of the same test for an individual. From week 48 of 2020 onwards, test data were reported from the Notifiable Medical Conditions Surveillance System (NMCSS). Date of specimen receipt in the laboratory was used when date of specimen collection was missing. Proportion testing positive (PTP) was calculated as the number of positive tests/total number of tests and presented as percentage by multiplying with 100. We used 2020 mid-year population estimates from Statistics South Africa to calculate the testing rate, expressed as tests per 100,000 persons. Patient admission status for public and private sector tests was determined based on the reported patient facility. Laboratory turnaround times were calculated as the mean number of days between specimen collection and reporting of the result. Categorical variables were compared using the chi-squared test, and continuous variables with the students t-test, with a P-value<0.05 considered statistically significant.

Health district and sub-district (in the metros) level results were mapped based on geo-locatable public and private sector testing facilities. Estimates of overall prevalence were derived using regression techniques. Estimates were adjusted to produce district-specific positive test prevalences based on the national average age and sex profile of testing for that week. This adjustment allows more accurate comparison of the proportion testing positive across districts.

The report includes tests reported between 1 March 2020 (week 10 of 2020), the week when the first case of COVID-19 was confirmed, and 22 May 2021 (week 20 of 2021).

Testing volumes and proportion testing positive

From 1 March 2020 through 22 May 2021, 11,298,963 SARS-CoV-2 tests were reported; 10,363,713 PCR and 935,250 antigen tests. The number of tests reported increased weekly from week 10 of 2020, with the highest number of tests reported during the first wave occurring in week 28 of 2020 (n=307,912), and subsequently decreased. Weekly testing volumes increased again from week 48 (beginning 22 November 2020), with the highest weekly number of tests since the start of the pandemic reported in week 1 of 2021 (n=500,952). In week 20 of 2021, 225,055 tests were reported, slightly lower than the previous week (n=231,011), but higher than the weekly testing volumes reported over recent weeks. All tests for samples collected in the previous week may not yet be reflected. Reduced testing volumes were observed over weekends and public holidays (Figure 1).

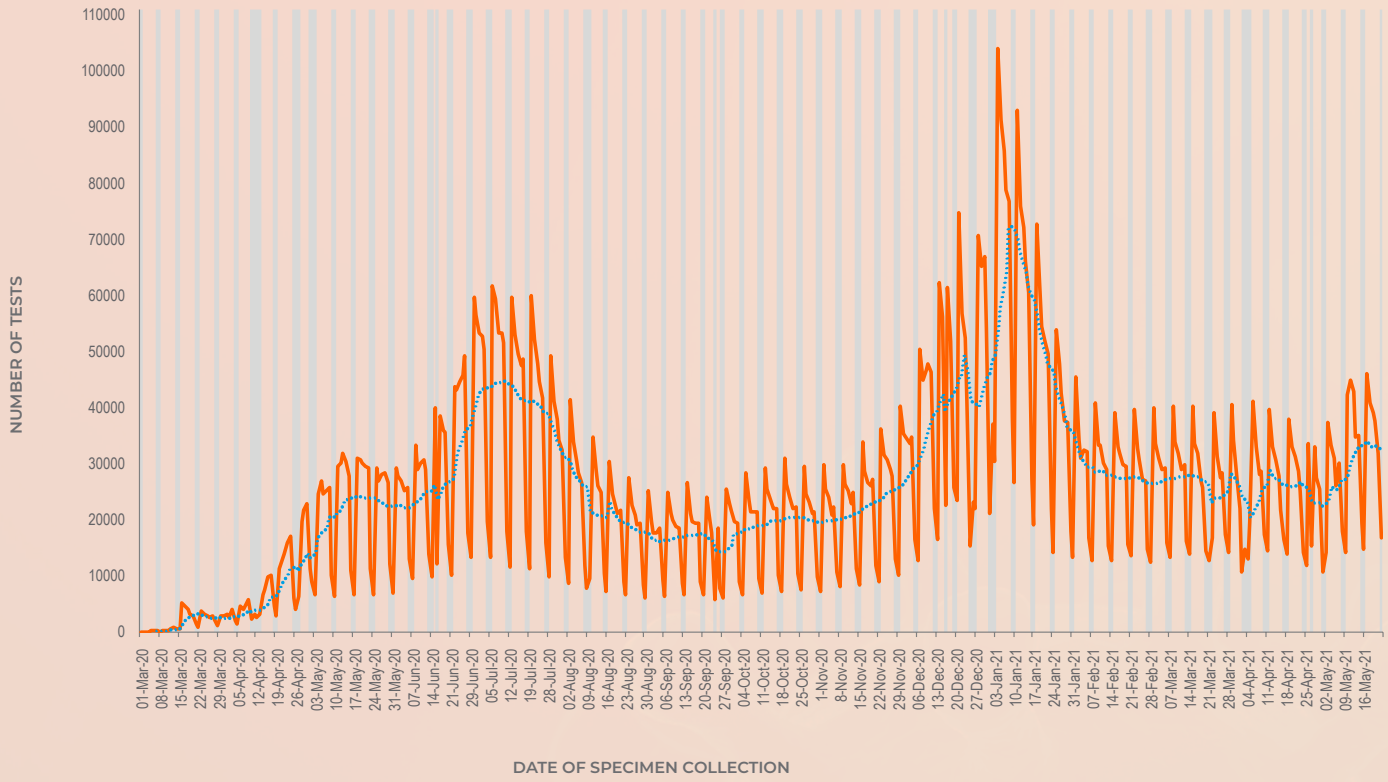

Figure 1. Number of SARS-CoV-2 tests reported by date of specimen collection, South Africa, 1 March 2020 – 22 May 2021. Blue dotted line shows the 7-day moving average of the number of tests reported. Grey bars highlight weekend days and public holidays.

The overall percentage testing positive from week 10 of 2020 through week 20 of 2021 was 15.1% (Table 1). During the first wave of infections, the percentage testing positive peaked at 29.7% in week 29 of 2020, and subsequently decreased to 8.4% in week 44 of 2020. During the second wave of infections the percentage testing positive started increasing from week 46 of 2020, to a peak of 34.6% in week 53 of 2020. The percentage testing positive in week 20 of 2021 was 9.9%, higher than observed in the previous week (8.5%, P<0.001) and higher than observed since early February 2021 (Figure 2).

Table 1. Weekly number of SARS-CoV-2 tests and positive tests reported, South Africa, 1 March 2020 – 22 May 2021

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)
10	01-Mar-20	456 (0.0)	13	2.9
11	08-Mar-20	2380 (0.0)	103	4.3
12	15-Mar-20	21567 (0.2)	897	4.2
13	22-Mar-20	17544 (0.2)	544	3.1
14	29-Mar-20	18248 (0.2)	521	2.9
15	05-Apr-20	26299 (0.2)	796	3.0
16	12-Apr-20	43752 (0.4)	1295	3.0
17	19-Apr-20	79176 (0.7)	2177	2.7
18	26-Apr-20	93810 (0.8)	3205	3.4
19	03-May-20	142708 (1.3)	6018	4.2
20	10-May-20	165374 (1.5)	8092	4.9
21	17-May-20	166544 (1.5)	11379	6.8
22	24-May-20	156137 (1.4)	12967	8.3
23	31-May-20	153569 (1.4)	15079	9.8
24	07-Jun-20	173901 (1.5)	22361	12.9
25	14-Jun-20	186081 (1.6)	32649	17.5
26	21-Jun-20	252097 (2.2)	55049	21.8
27	28-Jun-20	302742 (2.7)	75309	24.9
28	05-Jul-20	307912 (2.7)	86038	27.9
29	12-Jul-20	285599 (2.5)	84927	29.7
30	19-Jul-20	270892 (2.4)	78635	29.0
31	26-Jul-20	216391 (1.9)	58393	27.0
32	02-Aug-20	179573 (1.6)	40996	22.8
33	09-Aug-20	141103 (1.2)	26265	18.6
34	16-Aug-20	135013 (1.2)	21377	15.8
35	23-Aug-20	123333 (1.1)	16331	13.2
36	30-Aug-20	112762 (1.0)	12790	11.3
37	06-Sep-20	116996 (1.0)	11953	10.2
38	13-Sep-20	120713 (1.1)	12011	10.0
39	20-Sep-20	98818 (0.9)	10098	10.2
40	27-Sep-20	123062 (1.1)	11008	8.9
41	04-Oct-20	131043 (1.2)	11778	9.0
42	11-Oct-20	137974 (1.2)	12077	8.8
43	18-Oct-20	142168 (1.3)	12068	8.5
44	25-Oct-20	135847 (1.2)	11478	8.4
45	01-Nov-20	138820 (1.2)	12135	8.7
46	08-Nov-20	147007 (1.3)	14845	10.1
47	15-Nov-20	160642 (1.4)	18762	11.7
48	22-Nov-20	175684 (1.6)	22051	12.6
49	29-Nov-20	203143 (1.8)	30766	15.1
50	06-Dec-20	267914 (2.4)	53310	19.9
51	13-Dec-20	294453 (2.6)	68575	23.3
52	20-Dec-20	284469 (2.5)	81951	28.8
53	27-Dec-20	334375 (3.0)	115729	34.6
1	03-Jan-21	500952 (4.4)	150999	30.1
2	10-Jan-21	417839 (3.7)	104767	25.1

3	17-Jan-21	327278 (2.9)	63236	19.3
4	24-Jan-21	249347 (2.2)	34615	13.9
5	31-Jan-21	203369 (1.8)	22319	11.0
6	07-Feb-21	193067 (1.7)	16439	8.5
7	14-Feb-21	190194 (1.7)	12128	6.4
8	21-Feb-21	184126 (1.6)	10351	5.6
9	28-Feb-21	189142 (1.7)	8659	4.6
10	07-Mar-21	192443 (1.7)	8304	4.3
11	14-Mar-21	185000 (1.6)	8124	4.4
12	21-Mar-21	171401 (1.5)	7318	4.3
13	28-Mar-21	162841 (1.4)	7032	4.3
14	04-Apr-21	179001 (1.6)	7249	4.0
15	11-Apr-21	182230 (1.6)	8785	4.8
16	18-Apr-21	182454 (1.6)	9390	5.1
17	25-Apr-21	155778 (1.4)	9099	5.8
18	02-May-21	188344 (1.7)	13291	7.1
19	09-May-21	231011 (2.0)	19683	8.5
20	16-May-21	225055 (2.0)	22331	9.9
	Total	**11,298,963(100.0)**	**1,706,589**	**15.1**

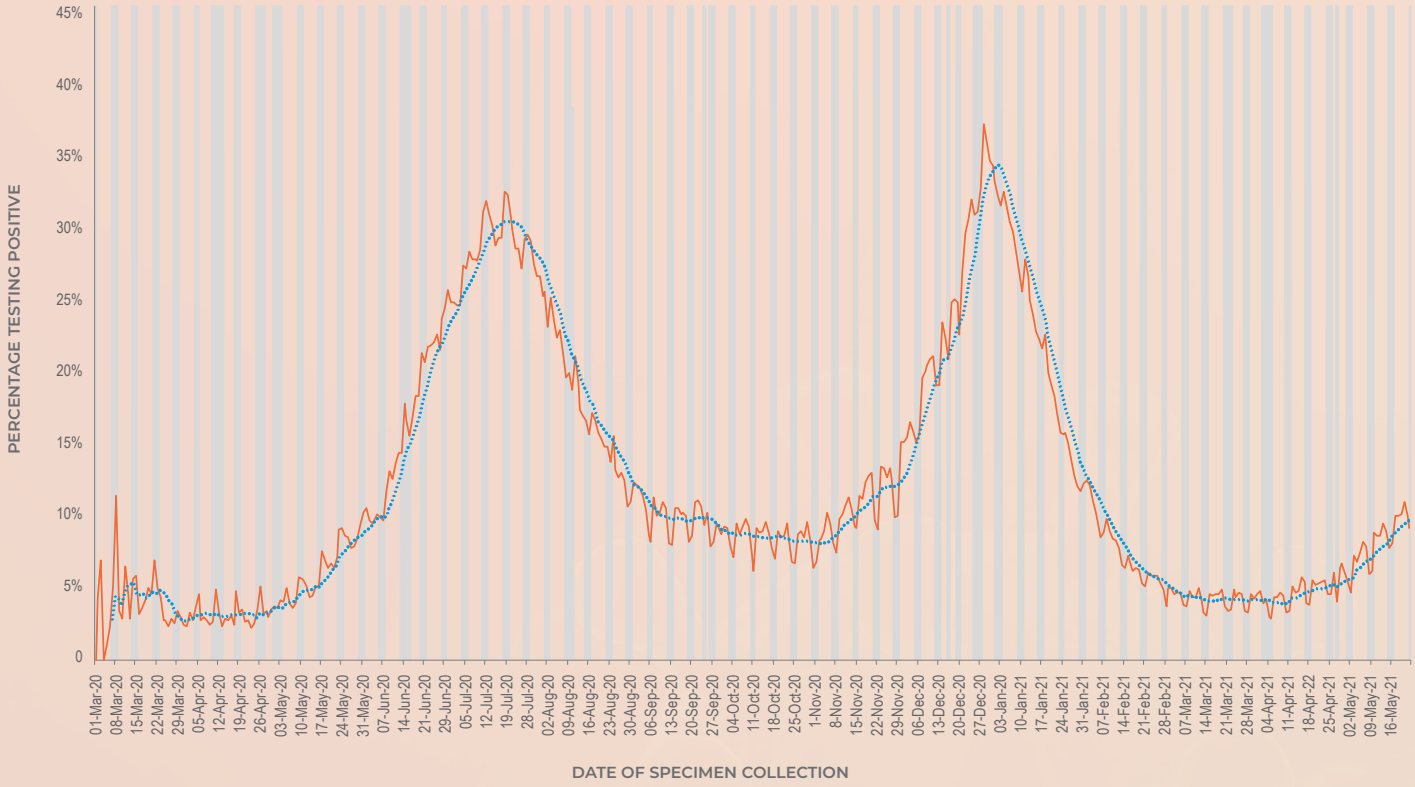

Figure 2. Percentage of tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March 2020 – 22 May 2021. Blue dotted line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

Testing in private and public sectors

From 1 March 2020 through 22 May 2021, 4,912,843 tests were reported in the public sector, with 15.9% testing positive. Over this same period, the private sector reported 6,386,120 tests, with 14.9% testing positive (Table 2). Overall, the public sector has reported 43.5% of tests and accounted for 45.1% of positive tests. In the first wave of infections the peak percentage testing positive was observed in week 30 of 2020 in the public sector (28.8%), and in week 29 of 2020 in the private sector (30.6%). In the second wave of infections the highest percentage testing positive was observed in week 53 of 2020 in both the public sector (34.9%) and private sector (34.4%). From week 19 to week 20 of 2021, the percentage testing positive increased in the public sector (8.5% in week 19 to 9.3% in week 20, P<0.001) and in the private sector (8.5% in week 19 to 10.3% in week 20, P<0.001). In week 20 of 2021 the percentage testing positive in the private sector (10.3%) was higher than in the public sector (9.3%, P<0.001).

The mean turnaround time for PCR tests reported in week 20 of 2021 was 1.0 day; 1.8 days in the public sector and 0.7 days in the private sector (Figure 3). Turnaround times for public sector PCR tests were ≤2 days in all provinces except the Northern Cape (2.2 days) and Free State (2.8 days) in week 20 (Figure 4). Increases in turnaround time were observed in the Free State and the North West in the past week. Twenty of the 28 (71.4%) NHLS laboratories performing PCR testing for SARS-CoV-2 had turnaround times ≤2 days in week 20 (Figure 5).

Table 2. Weekly number of tests and positive tests reported, by healthcare sector, South Africa, 1 March 2020 – 22 May 2021

		Public sector		Private sector		Public sector percentage of		Ratio of PTP[a]
Week number	Week beginning	Tests	Cases n (%)	Tests	Positive tests n (%)	Tests (%)	Positive tests (%)	
10	01-Mar-20	294	10 (3.4)	162	3 (1.9)	64.5	76.9	1.837
11	08-Mar-20	401	27 (6.7)	1979	76 (3.8)	16.8	26.2	1.753
12	15-Mar-20	1442	81 (5.6)	20125	816 (4.1)	6.7	9.0	1.385
13	22-Mar-20	3478	149 (4.3)	14066	395 (2.8)	19.8	27.4	1.526
14	29-Mar-20	5868	194 (3.3)	12380	327 (2.6)	32.2	37.2	1.252
15	05-Apr-20	11735	417 (3.6)	14564	379 (2.6)	44.6	52.4	1.366
16	12-Apr-20	24167	672 (2.8)	19585	623 (3.2)	55.2	51.9	0.874
17	19-Apr-20	55110	1595 (2.9)	24066	582 (2.4)	69.6	73.3	1.197
18	26-Apr-20	67469	2453 (3.6)	26341	752 (2.9)	71.9	76.5	1.274
19	03-May-20	94338	4507 (4.8)	48370	1511 (3.1)	66.1	74.9	1.529
20	10-May-20	108000	5443 (5.0)	57374	2649 (4.6)	65.3	67.3	1.092
21	17-May-20	98648	7031 (7.1)	67896	4348 (6.4)	59.2	61.8	1.113
22	24-May-20	77597	6411 (8.3)	78540	6556 (8.3)	49.7	49.4	0.990
23	31-May-20	63945	6626 (10.4)	89624	8453 (9.4)	41.6	43.9	1.099
24	07-Jun-20	64655	8039 (12.4)	109246	14322 (13.1)	37.2	36.0	0.948
25	14-Jun-20	61149	11982 (19.6)	124932	20667 (16.5)	32.9	36.7	1.185
26	21-Jun-20	90454	20425 (22.6)	161643	34624 (21.4)	35.9	37.1	1.054
27	28-Jun-20	106370	27244 (25.6)	196372	48065 (24.5)	35.1	36.2	1.046
28	05-Jul-20	117727	32239 (27.4)	190185	53799 (28.3)	38.2	37.5	0.968
29	12-Jul-20	110664	31383 (28.4)	174935	53544 (30.6)	38.7	37.0	0.927
30	19-Jul-20	105215	30319 (28.8)	165677	48316 (29.2)	38.8	38.6	0.988
31	26-Jul-20	81247	22782 (28.0)	135144	35611 (26.4)	37.5	39.0	1.064
32	02-Aug-20	70566	16996 (24.1)	109007	24000 (22.0)	39.3	41.5	1.094
33	09-Aug-20	58661	11172 (19.0)	82442	15093 (18.3)	41.6	42.5	1.040
34	16-Aug-20	56138	9621 (17.1)	78875	11756 (14.9)	41.6	45.0	1.150
35	23-Aug-20	50319	7790 (15.5)	73014	8541 (11.7)	40.8	47.7	1.323
36	30-Aug-20	45422	6096 (13.4)	67340	6694 (9.9)	40.3	47.7	1.350
37	06-Sep-20	51055	6421 (12.6)	65941	5532 (8.4)	43.6	53.7	1.499
38	13-Sep-20	53706	6547 (12.2)	67007	5464 (8.2)	44.5	54.5	1.495
39	20-Sep-20	44841	5530 (12.3)	53977	4568 (8.5)	45.4	54.8	1.457
40	27-Sep-20	48629	5568 (11.4)	74433	5440 (7.3)	39.5	50.6	1.567
41	04-Oct-20	50434	5689 (11.3)	80609	6089 (7.6)	38.5	48.3	1.493
42	11-Oct-20	53451	5702 (10.7)	84523	6375 (7.5)	38.7	47.2	1.414
43	18-Oct-20	56123	6045 (10.8)	86045	6023 (7.0)	39.5	50.1	1.539
44	25-Oct-20	51285	5721 (11.2)	84562	5757 (6.8)	37.8	49.8	1.639
45	01-Nov-20	52999	6061 (11.4)	85821	6074 (7.1)	38.2	49.9	1.616
46	08-Nov-20	58913	8097 (13.7)	88094	6748 (7.7)	40.1	54.5	1.794
47	15-Nov-20	67582	10584 (15.7)	93060	8178 (8.8)	42.1	56.4	1.782
48	22-Nov-20	74572	12199 (16.4)	101112	9852 (9.7)	42.4	55.3	1.679
49	29-Nov-20	81268	15730 (19.4)	121875	15036 (12.3)	40.0	51.1	1.569
50	06-Dec-20	107909	24715 (22.9)	160005	28595 (17.9)	40.3	46.4	1.282
51	13-Dec-20	117212	29815 (25.4)	177241	38760 (21.9)	39.8	43.5	1.163
52	20-Dec-20	109838	34124 (31.1)	174631	47827 (27.4)	38.6	41.6	1.134
53	27-Dec-20	151623	52930 (34.9)	182752	62799 (34.4)	45.3	45.7	1.016
1	03-Jan-21	236860	71046 (30.0)	264092	79953 (30.3)	47.3	47.1	0.991
2	10-Jan-21	203959	52946 (26.0)	213880	51821 (24.2)	48.8	50.5	1.071
3	17-Jan-21	165609	34448 (20.8)	161669	28788 (17.8)	50.6	54.5	1.168
4	24-Jan-21	123164	18980 (15.4)	126183	15635 (12.4)	49.4	54.8	1.244
5	31-Jan-21	99554	12031 (12.1)	103815	10288 (9.9)	49.0	53.9	1.219
6	07-Feb-21	91171	8486 (9.3)	101896	7953 (7.8)	47.2	51.6	1.193
7	14-Feb-21	86043	6632 (7.7)	104151	5496 (5.3)	45.2	54.7	1.461
8	21-Feb-21	82219	5769 (7.0)	101907	4582 (4.5)	44.7	55.7	1.561
9	28-Feb-21	87722	4661 (5.3)	101420	3998 (3.9)	46.4	53.8	1.348
10	07-Mar-21	92005	4567 (5.0)	100438	3737 (3.7)	47.8	55.0	1.334
11	14-Mar-21	89478	4424 (4.9)	95522	3700 (3.9)	48.4	54.5	1.276
12	21-Mar-21	75825	3437 (4.5)	95576	3881 (4.1)	44.2	47.0	1.116
13	28-Mar-21	70447	3440 (4.9)	92394	3592 (3.9)	43.3	48.9	1.256
14	04-Apr-21	77843	3331 (4.3)	101158	3918 (3.9)	43.5	46.0	1.105

15	11-Apr-21	83634	4327 (5.2)	98596	4458 (4.5)	45.9	49.3	1.144
16	18-Apr-21	78317	4645 (5.9)	104137	4745 (4.6)	42.9	49.5	1.302
17	25-Apr-21	66531	4057 (6.1)	89247	5042 (5.6)	42.7	44.6	1.079
18	02-May-21	75998	5351 (7.0)	112346	7940 (7.1)	40.4	40.3	0.996
19	09-May-21	83896	7173 (8.5)	147115	12510 (8.5)	36.3	36.4	1.005
20	16-May-21	80049	7450 (9.3)	145006	14881 (10.3)	35.6	33.4	0.907
	Total	**4,912,843**	**780,383 (15.9)**	**6,386,120**	**948,537 (14.9)**	**43.5**	**45.1**	**1.069**

[a]Ratio of percentage testing positive (PTP) in the public sector to the private sector calculated as (no. of cases/total tests in public sector)/ (no. of cases/total tests in private sector)

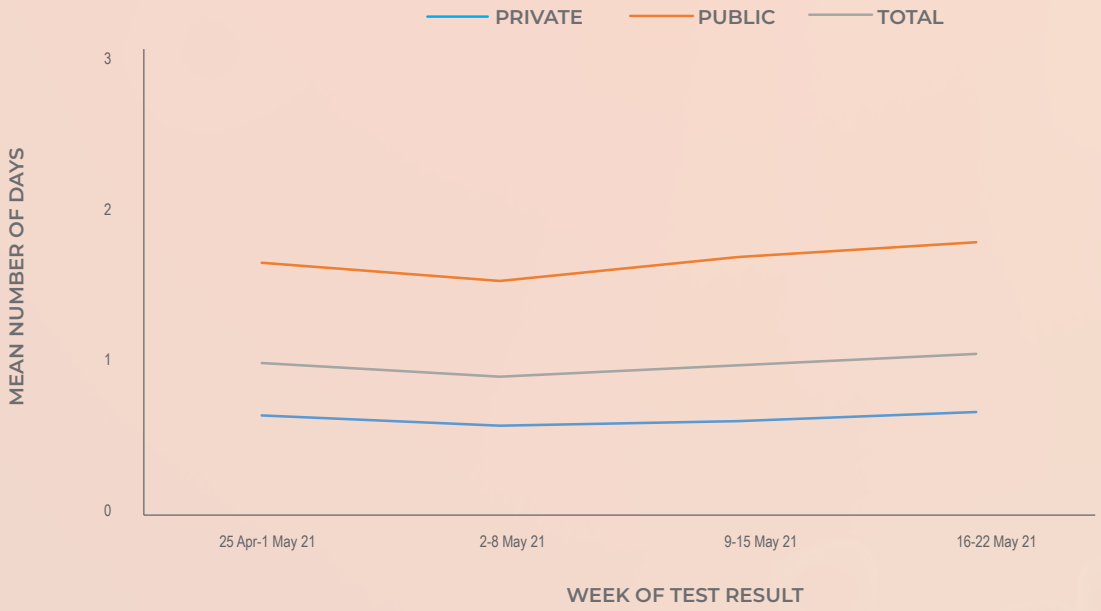

Figure 3. Mean number of days between date of specimen collection and date of test result for PCR tests, by week of test result, South Africa, 25 April – 22 May 2021

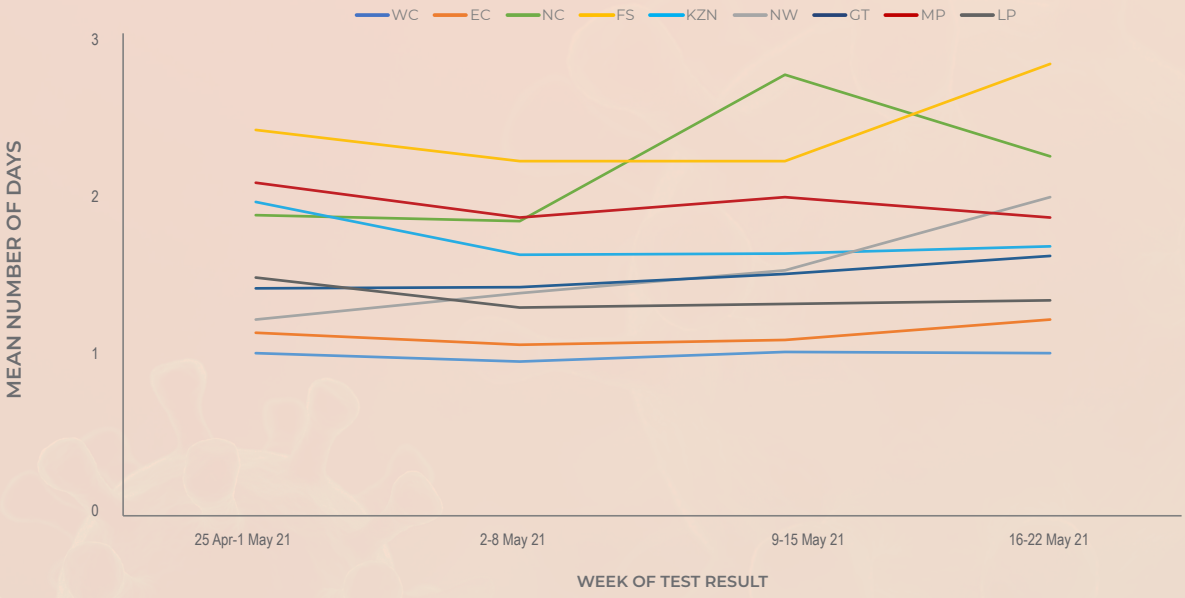

Figure 4. Mean number of days between date of specimen collection and date of test result for PCR tests, by week of test result and province, public sector, South Africa, 25 April – 22 May 2021. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal; GT, Gauteng; NC, Northern Cape; NW, North West; MP, Mpumalanga; LP, Limpopo

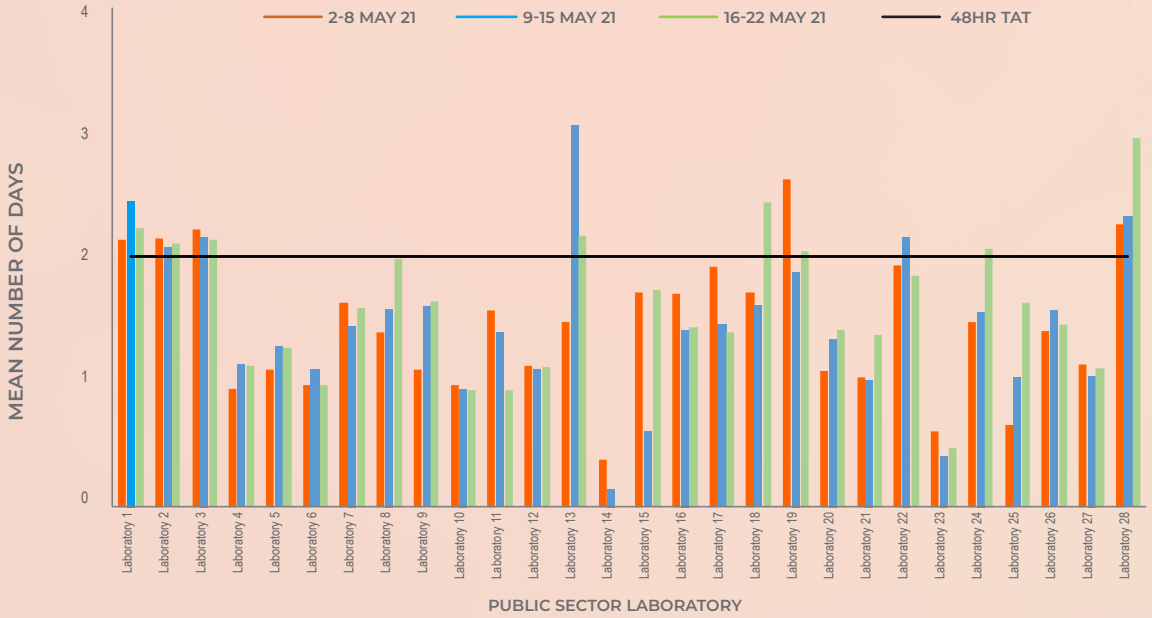

Figure 5. Mean number of days between date of specimen collection and date of test result for PCR tests, by public sector laboratory, 2-22 May 2021. The horizontal black line indicates 48-hour turnaround time (TAT).

Testing by province

The majority of tests continued to be reported in Gauteng (39.4%), KwaZulu-Natal (14.8%) and Western Cape (14.7%) provinces in week 20 of 2021 (Table 3). The overall testing rate decreased from 387 per 100,000 persons in week 19 to 377 per 100,000 in week 20. The testing rate ranged from 905 per 100,000 persons in the Northern Cape to 82 per 100,000 persons in Limpopo (Figure 6). Testing rates increased slightly in the Eastern Cape, Northern Cape and Gauteng and decreased in the Western Cape, Free State and KwaZulu-Natal. Testing rates in the North West, Mpumalanga and Limpopo were similar to the previous week.

The percentage testing positive in week 20 was highest in the Northern Cape (25.0%), Free State (18.8%), North West (16.5%), Mpumalanga (10.9%) and Gauteng (10.8%) provinces. The percentage testing positive was less than 10% in all other provinces. (Figure 7 and Table 3). Compared to the previous week, the percentage testing positive in week 20 increased the Eastern Cape (P=0.006), North West (P=0.021), Gauteng (P<0.001), Mpumalanga (P<0.001), KwaZulu-Natal (P<0.001), Free State (P<0.001) and Limpopo (P<0.001). The percentage testing positive was unchanged in the Northern Cape (P=0.055) and the Western Cape (P=0.120). The percentage testing positive was higher than the national average, not weighted for population size, in the Northern Cape, Free State, North West, Mpumalanga and Gauteng (Figure 7).

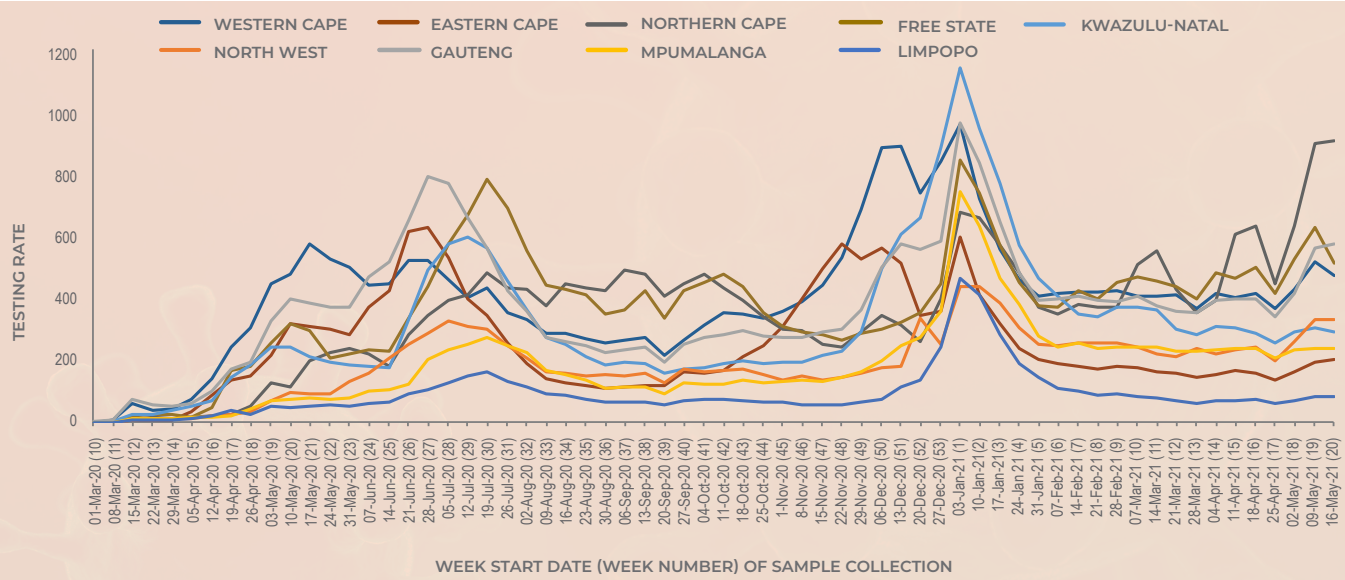

Figure 6. Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 1 March 2020 – 22 May 2021

Table 3. Weekly number of tests and positive tests reported, by province, South Africa, 2 – 22 May 2021

		2-8 May 2021		9-15 May 2021		16-22 May 2021			
Province	**Population[a]**	**No. of tests**	**No. positive tests (%)**	**No. of tests**	**No. positive tests (%)**	**No. of tests**	**No. positive tests (%)**	**Tests per 100,000 persons**	**Change in percentage positive[b]**
Western Cape	7005741	30085	1347 (4.5)	36049	1857 (5.2)	33182	1797 (5.4)	474	0.3%
Eastern Cape	6734001	11062	171 (1.5)	12936	378 (2.9)	13523	476 (3.5)	201	0.6%
Northern Cape	1292786	8160	1957 (24.0)	11573	2765 (23.9)	11704	2923 (25.0)	905	1.1%
Free State	2928903	15336	2526 (16.5)	18336	3175 (17.3)	14966	2814 (18.8)	511	1.5%
KwaZulu-Natal	11531628	33491	661 (2.0)	35247	761 (2.2)	33335	870 (2.6)	289	0.5%
North West	4108816	10686	1475 (13.8)	13502	2086 (15.4)	13497	2224 (16.5)	328	1.0%
Gauteng	15488137	64338	4122 (6.4)	87109	7402 (8.5)	88720	9625 (10.8)	573	2.4%
Mpumalanga	4679786	10858	803 (7.4)	11214	998 (8.9)	11117	1211 (10.9)	238	2.0%
Limpopo	5852553	4118	224 (5.4)	4793	241 (5.0)	4790	355 (7.4)	82	2.4%
Unknown		210	5 (2.4)	252	20 (7.9)	221	36 (16.3)		
Total	**59622350**	**188344**	**13291 (7.1)**	**231011**	**19683 (8.5)**	**225055**	**22331 (9.9)**	**377**	**1.4%**

[a] 2020 Mid-year population Statistics SA

[b] Current week compared to previous week

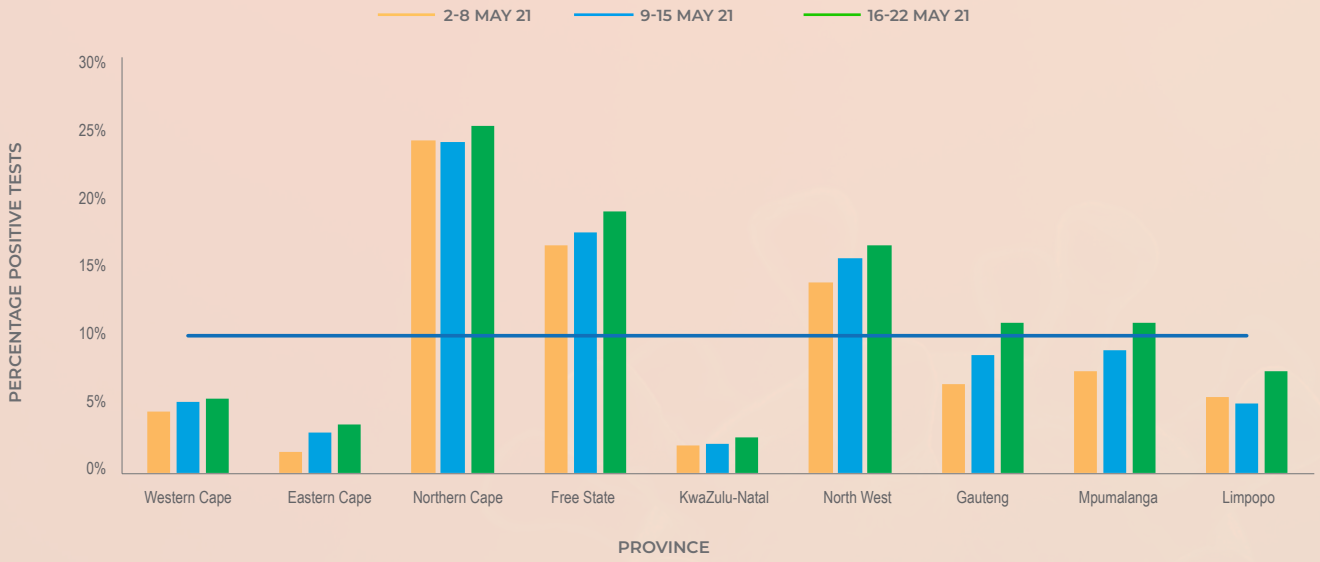

Figure 7. Weekly percentage testing positive, by province, South Africa, 2-22 May 2021. The horizontal blue line shows the national mean for week 20, beginning 16 May 2021

Testing in the public sector

In the public sector, the percentage testing positive increased in the past week (8.5% in week 19 to 9.3% in week 20, P<0.001) (Table 4). The percentage testing positive in week 20 was highest in the Northern Cape (24.5%), North West (17.1%) and Free State (17.2%) provinces. The percentage testing positive in the public sector remains higher than the national average, not weighted for population size, in the Northern Cape, Free State, North West, Gauteng and Mpumalanga provinces (Figure 8).

Table 4. Weekly number of tests and positive tests reported in the public sector, by province, South Africa, 2-22 May 2021

	2-8 May 2021		9-15 May 2021		16-22 May 2021	
Province	**No. of tests**	**No. positive tests (%)**	**No. of tests**	**No. positive tests (%)**	**No. of tests**	**No. positive tests (%)**
Western Cape	8675	391 (4.5)	9106	477 (5.2)	9067	437 (4.8)
Eastern Cape	6308	65 (1.0)	7641	157 (2.1)	7745	142 (1.8)
Northern Cape	4921	1134 (23.0)	6421	1594 (24.8)	7291	1786 (24.5)
Free State	7695	1144 (14.9)	8773	1421 (16.2)	6223	1069 (17.2)
KwaZulu-Natal	20969	369 (1.8)	21825	427 (2.0)	19206	423 (2.2)
North West	4535	749 (16.5)	5419	990 (18.3)	5218	890 (17.1)
Gauteng	16558	1158 (7.0)	19065	1675 (8.8)	20226	2255 (11.1)
Mpumalanga	5249	272 (5.2)	4411	358 (8.1)	3528	353 (10.0)
Limpopo	1078	69 (6.4)	1231	74 (6.0)	1544	95 (6.2)
Unknown	10	0 (0.0)	4	0 (0.0)	1	0 (0.0)
Total	**75998**	**5351 (7.0)**	**83896**	**7173 (8.5)**	**80049**	**7450 (9.3)**

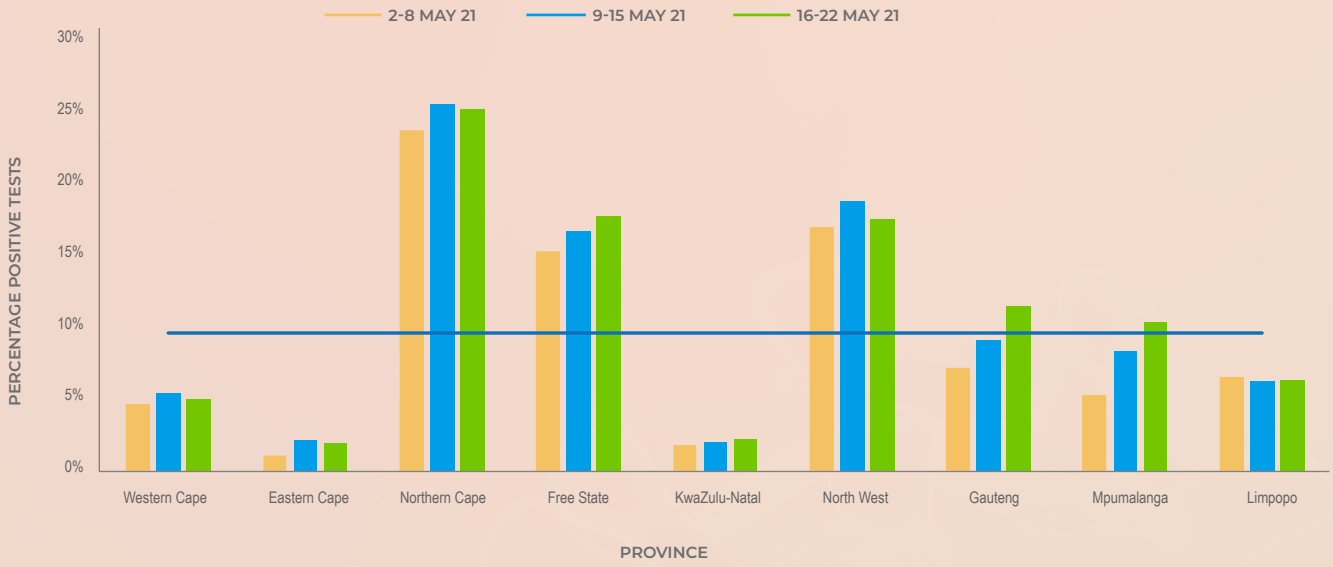

Figure 8. Weekly percentage testing positive in the public sector, by province, South Africa, 2-22 May 2021. The horizontal blue line shows the national mean for week 20 of 2021, beginning 16 May 2021.

Facilities with high proportions testing positive

Table 5.1 shows the 25 public sector clinics, hospitals and testing laboratories (where specimens were not tied to a particular facility), that had 25 or more specimens tested and at least five positive results in the week of 16-22 May 2021. Nine of the 25 facilities showing the highest PTP are in the Northern Cape, six in Gauteng, four in the Free State, and two each in Mpumalanga and North West.

Table 5.1 Public sector healthcare facilities with a high proportion testing positive, 16 - 22 May 2021

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Gauteng	26	0.846 (0.707;0.985)
Facility 2	Mpumalanga	34	0.559 (0.392;0.726)
Facility 3	Northern Cape	90	0.556 (0.453;0.658)
Facility 4	Northern Cape	34	0.500 (0.332;0.668)
Facility 5	Free State	41	0.463 (0.311;0.616)
Facility 6	Northern Cape	103	0.427 (0.332;0.523)
Facility 7	Northern Cape	112	0.420 (0.328;0.511)
Facility 8	North West	31	0.419 (0.246;0.593)
Facility 9	Free State	28	0.393 (0.212;0.574)
Facility 10	Free State	28	0.393 (0.212;0.574)
Facility 11	Gauteng	28	0.393 (0.212;0.574)
Facility 12	Gauteng	341	0.390 (0.338;0.442)
Facility 13	Gauteng	36	0.389 (0.230;0.548)
Facility 14	Free State	206	0.383 (0.317;0.450)
Facility 15	Northern Cape	330	0.361 (0.309;0.412)
Facility 16	Mpumalanga	28	0.357 (0.180;0.535)
Facility 17	North West	96	0.354 (0.258;0.450)
Facility 18	Northern Cape	176	0.347 (0.276;0.417)
Facility 19	Northern Cape	188	0.346 (0.278;0.414)
Facility 20	Western Cape	61	0.344 (0.225;0.463)
Facility 21	Eastern Cape	32	0.344 (0.179;0.508)
Facility 22	Northern Cape	88	0.341 (0.242;0.440)
Facility 23	Gauteng	50	0.340 (0.209;0.471)
Facility 24	Gauteng	104	0.337 (0.246;0.427)
Facility 25	Northern Cape	167	0.335 (0.264;0.407)

95% CI: 95% confidence interval; PTP: positive test proportion

Table 5.2 shows the 25 private sector clinics, hospitals and testing laboratories (where specimens were not tied to a particular facility), that had 25 or more specimens tested and at least five positive results in the week of 16 - 22 May 2021, with the highest proportion testing positive nationally. Private-sector facilities with high proportions testing positive are concentrated in Gauteng (10), Northern Cape (6), four in the Free State, and three in the North West.

Table 5.2 Private sector healthcare facilities with a high proportion testing positive, 16 - 22 May 2021

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	North West	196	0.321 (0.256;0.387)
Facility 2	North West	44	0.318 (0.181;0.456)
Facility 3	Northern Cape	110	0.318 (0.231;0.405)
Facility 4	Mpumalanga	95	0.316 (0.222;0.409)
Facility 5	Gauteng	57	0.316 (0.195;0.436)
Facility 6	Gauteng	152	0.309 (0.236;0.383)
Facility 7	Northern Cape	1297	0.308 (0.283;0.334)
Facility 8	Northern Cape	384	0.307 (0.261;0.353)
Facility 9	Gauteng	402	0.306 (0.261;0.351)
Facility 10	Gauteng	76	0.303 (0.199;0.406)
Facility 11	North West	289	0.301 (0.248;0.354)
Facility 12	Free State	64	0.297 (0.185;0.409)
Facility 13	Gauteng	239	0.293 (0.235;0.351)
Facility 14	Gauteng	48	0.292 (0.163;0.420)
Facility 15	Gauteng	54	0.278 (0.158;0.397)
Facility 16	Gauteng	492	0.272 (0.233;0.312)
Facility 17	Limpopo	323	0.266 (0.218;0.314)
Facility 18	Free State	154	0.266 (0.196;0.336)
Facility 19	Free State	1383	0.264 (0.241;0.287)
Facility 20	Northern Cape	1186	0.264 (0.239;0.289)
Facility 21	Northern Cape	72	0.264 (0.162;0.366)
Facility 22	Free State	194	0.263 (0.201;0.325)
Facility 23	Northern Cape	42	0.262 (0.129;0.395)
Facility 24	Gauteng	142	0.261 (0.188;0.333)
Facility 25	Gauteng	139	0.252 (0.180;0.324)

95% CI: 95% confidence interval; PTP: positive test proportion

Health district-level results

The data from geolocatable public testing (almost every public sector facility in the country) and private testing (approximately 80% of private testing facilities) in the week from 16 - 22 May 2021 have been located within the spatial framework of the health districts and health sub-districts (in the metros). Estimates of overall prevalence were derived using regression techniques. These estimates were then adjusted to produce district-specific positive test prevalences based on the national average age and sex profile of testing for that week. This adjustment allows more accurate comparison of the proportion testing positive across districts. Districts with fewer than 20 tests reported during the week have been excluded from the analysis.

The results, for the 25 municipalities and metropolitan health sub-districts showing the greatest proportions testing positive (PTP) are shown in the table below. Fourteen of the 25 districts are in the Northern Cape, with six in the North West and two in the Free State. Four districts (three in the Northern Cape; one in the Free State) showed a PTP in the current week in excess of 30%, compared to nine in the preceding week. PTP exceeded 20% in all 25 districts (25 in the previous week). Significant increases were observed in two districts (Naledi in the North West, and Johannesburg G sub district in Gauteng). PTP in two districts in the Northern Cape (Siyathemba and Siyancuma) declined significantly.

Table 6. Health sub-districts with the highest proportion testing positive based on public and private sector data for the week of 16 - 22 May 2021

Health district or sub-district	Province	PTP (95% CI)	Previous week
Mafube	Free State	0.378 (0.282-0.473)	0.319 (0.221-0.418)
Ga-Segonyana	Northern Cape	0.354 (0.301-0.406)	0.310 (0.262-0.358)
Dikgatlong	Northern Cape	0.343 (0.260-0.426)	0.395 (0.305-0.485)
Tsantsabane	Northern Cape	0.312 (0.226-0.398)	0.446 (0.367-0.526)
Thembelihle	Northern Cape	0.298 (0.234-0.362)	0.349 (0.252-0.446)
Hantam	Northern Cape	0.289 (0.169-0.410)	0.215 (0.127-0.303)
Joe Morolong	Northern Cape	0.289 (0.180-0.397)	0.440 (0.320-0.560)
Sol Plaatjie	Northern Cape	0.280 (0.267-0.293)	0.277 (0.264-0.291)
Ratlou	North West	0.276 (0.218-0.334)	0.248 (0.134-0.361)
Kheis	Northern Cape	0.275 (0.179-0.372)	0.313 (0.223-0.404)
Naledi	North West	0.275 (0.231-0.318)	0.022 (0.000-0.065)
Mier	Northern Cape	0.274 (0.210-0.338)	0.160 (0.083-0.236)
Nala	Free State	0.273 (0.207-0.338)	0.181 (0.124-0.237)
Gamagara	Northern Cape	0.268 (0.152-0.385)	0.231 (0.157-0.305)
Dipaleseng	Mpumalanga	0.254 (0.151-0.357)	0.218 (0.112-0.324)
Mafikeng	North West	0.245 (0.222-0.268)	0.229 (0.206-0.251)
Kareeberg	Northern Cape	0.243 (0.188-0.299)	0.264 (0.192-0.336)
Ditsobotla	North West	0.243 (0.103-0.383)	0.182 (0.105-0.258)
Phokwane	Northern Cape	0.234 (0.190-0.279)	0.192 (0.149-0.235)
Siyathemba	Northern Cape	0.233 (0.200-0.266)	0.364 (0.323-0.405)
Siyancuma	Northern Cape	0.233 (0.206-0.259)	0.313 (0.273-0.353)
Lekwa-Teemane	North West	0.229 (0.119-0.339)	...
Johannesburg G	Gauteng	0.224 (0.205-0.242)	0.160 (0.141-0.179)
Mamusa	North West	0.222 (0.125-0.320)	0.196 (0.103-0.288)
Matzikama	Western Cape	0.219 (0.172-0.266)	0.288 (0.231-0.346)

95% CI: 95% confidence interval; PTP: adjusted positive test proportion; Elements marked in red have current week proportions testing positive that are higher than, and CIs that do not overlap with, the previous week proportions and CIs. Elements marked in blue have current week proportions testing positive that are lower than, and CIs that do not overlap with, the previous week proportions and CIs.

The data for the current week for every district with a non-zero proportion testing positive or where the range of confidence interval is not more than 30% (15% either side of the point estimate), and where more than 20 tests were conducted in the present week, is presented graphically below.

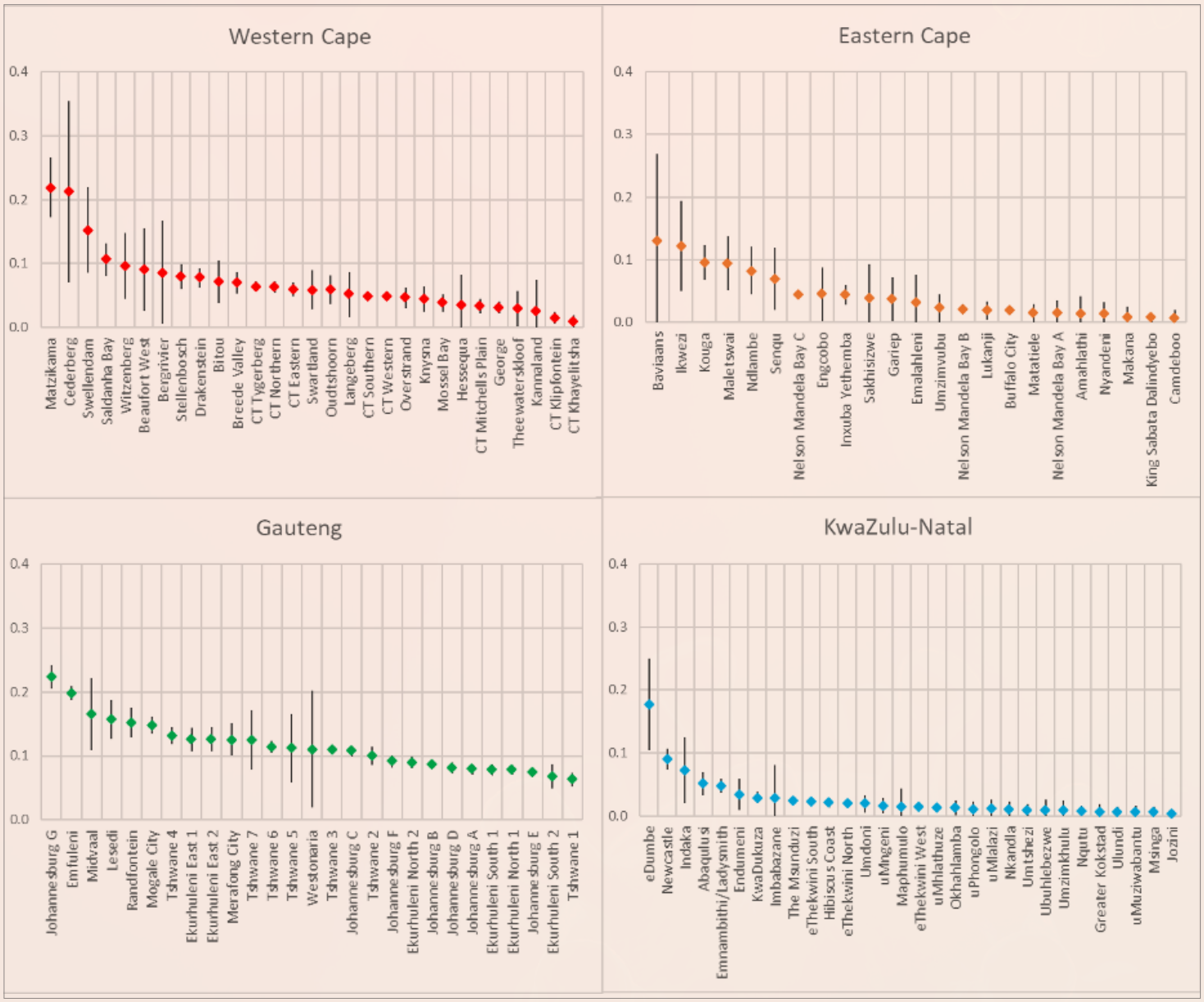

Figure 9.1 Proportions testing positive by health sub-district in the Western Cape, Eastern Cape, Gauteng and KwaZulu-Natal provinces based on public and private sector data for the week of 16 - 22 May 2021.

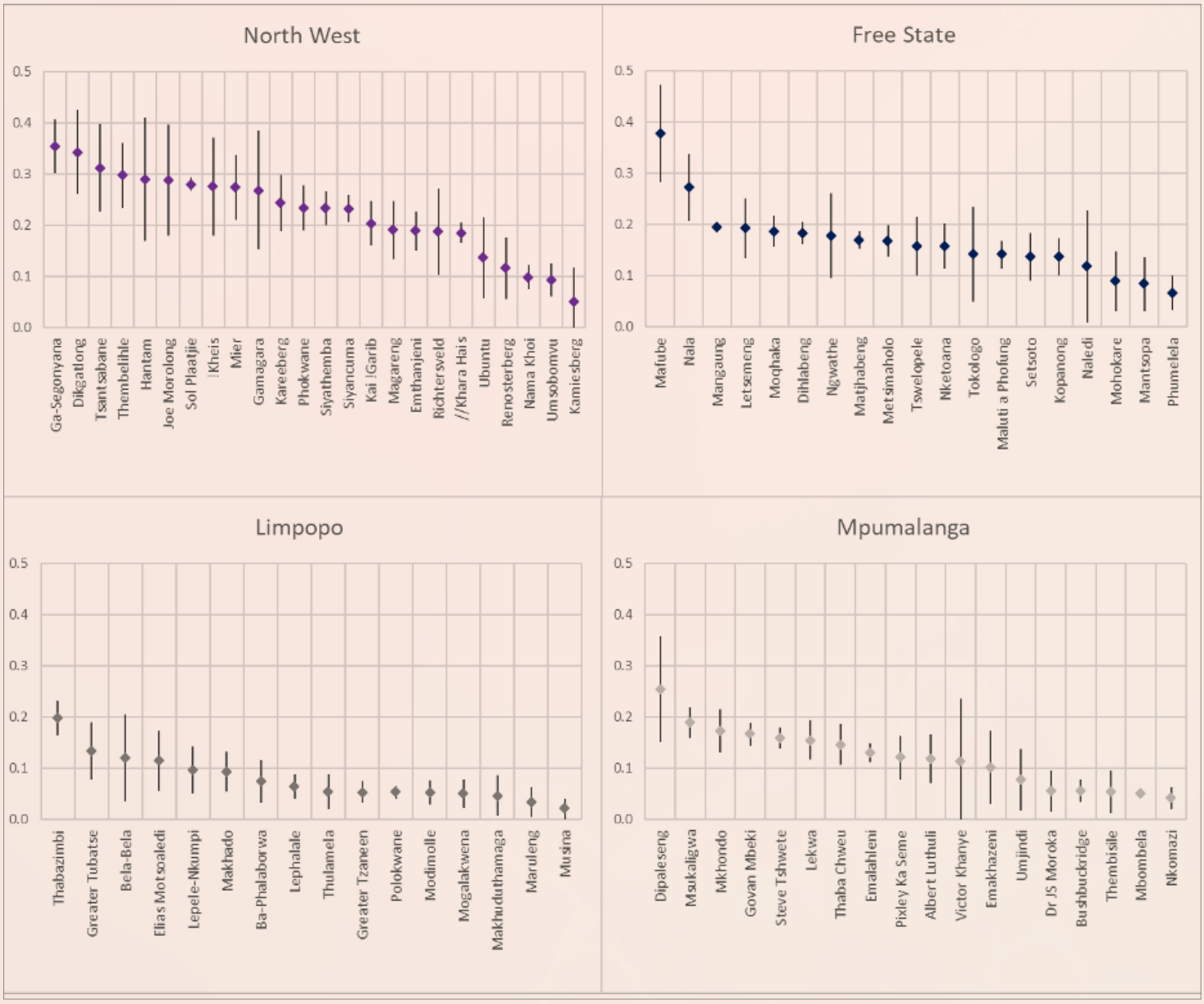

Figure 9.2 Proportions testing positive by health sub-district in the North West, Free State, Limpopo and Mpumalanga provinces based on public and private sector data for the week of 16 - 22 May 2021.

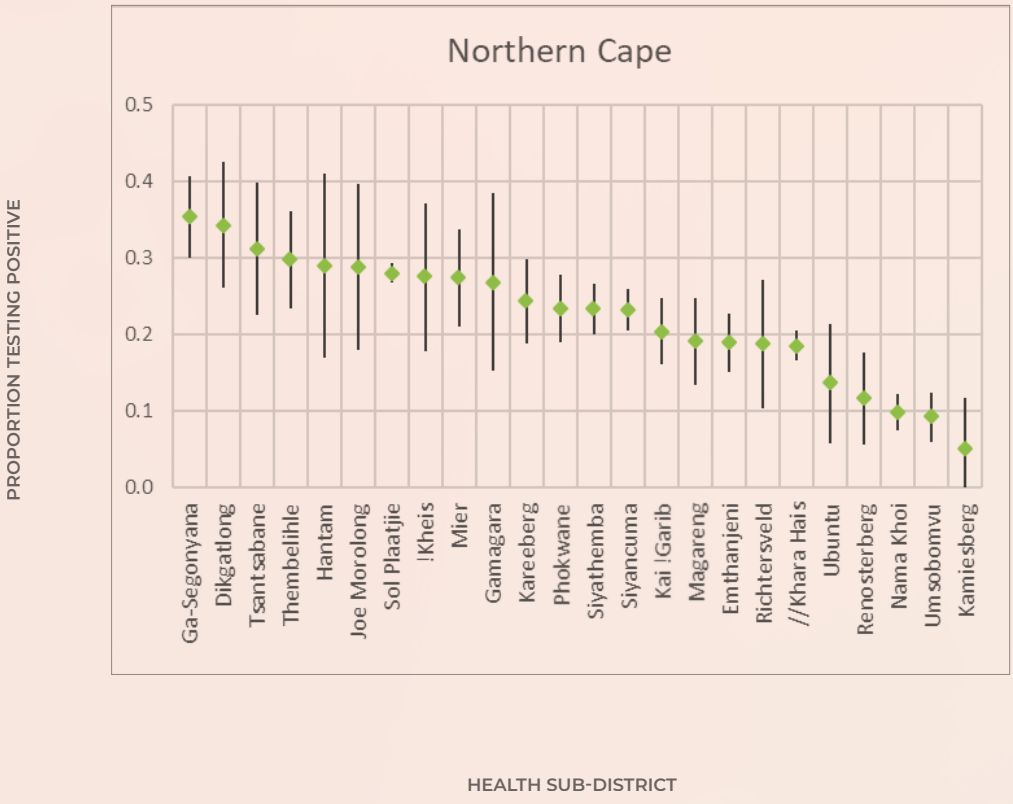

Figure 9.3 Proportions testing positive by health sub-districts in the Northern Cape Province based on public and private sector data for the week of 16 - 22 May 2021.

The spatial pattern of adjusted proportions testing positive, including both public and private sector data, by health district and sub-district are shown for South Africa (Figure 10), Western Cape (Figure 11), Eastern Cape (Figure 12), Northern Cape (Figure 13), Free State (Figure 14), KwaZulu-Natal (Figure 15), North West (Figure 16), Gauteng (Figure 17), Mpumalanga (Figure 18) and Limpopo (Figure 19).

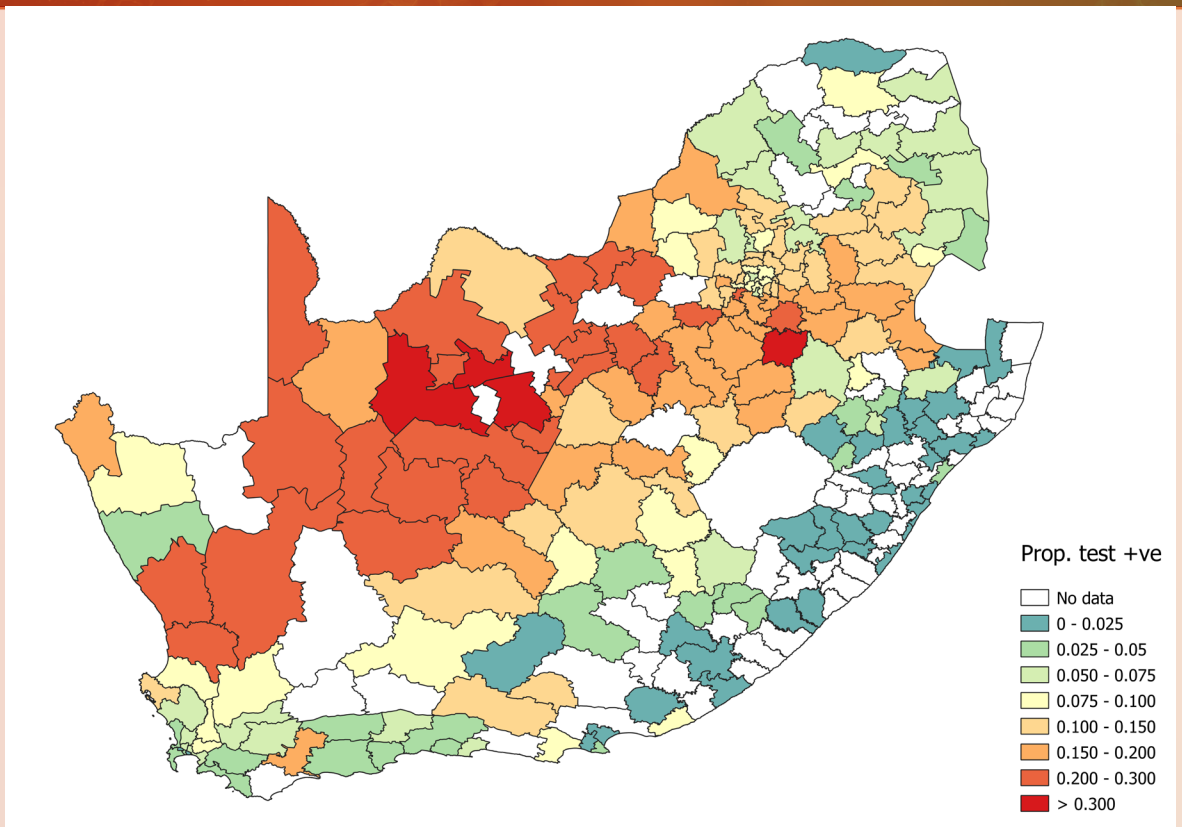

Figure 10. Proportion testing positive by health sub-district in South Africa for the week of 16 - 22 May 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

CPTE	CT Eastern	WC011	Matzikama	WC025	Breede Valley	WC043	Mossel Bay
CPTK	CT Khayelitsha	WC012	Cederberg	WC026	Langeberg	WC044	George
CPTM	CT Mitchells Plain	WC013	Bergrivier	WC031	Theewaterskloof	WC045	Oudtshoorn
CPTN	CT Northern	WC014	Saldanha Bay	WC032	Overstrand	WC047	Bitou
CPTP	CT Klipfontein	WC015	Swartland	WC033	Cape Agulhas	WC048	Knysna
CPTS	CT Southern	WC022	Witzenberg	WC034	Swellendam	WC051	Laingsburg
CPTT	CT Tygerberg	WC023	Drakenstein	WC041	Kannaland	WC052	Prince Albert
CPTW	CT Western	WC024	Stellenbosch	WC042	Hessequa	WC053	Beaufort West

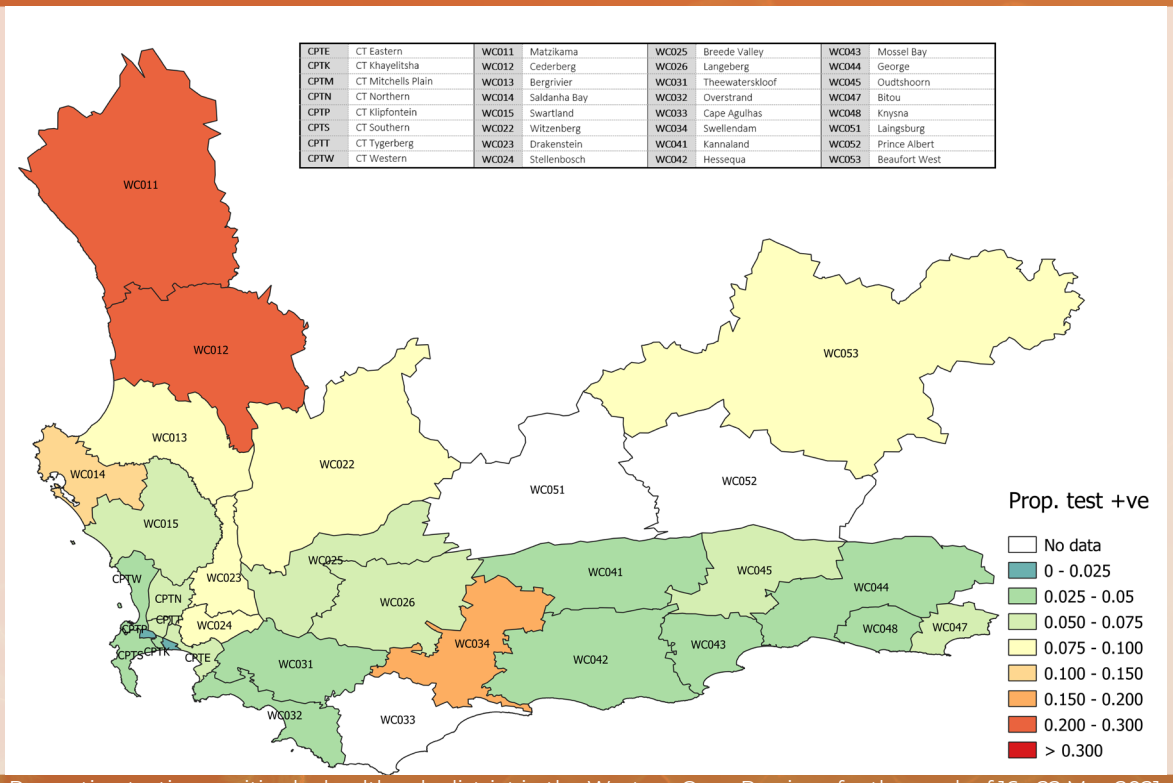

Figure 11. Proportion testing positive by health sub-district in the Western Cape Province for the week of 16 - 22 May 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%

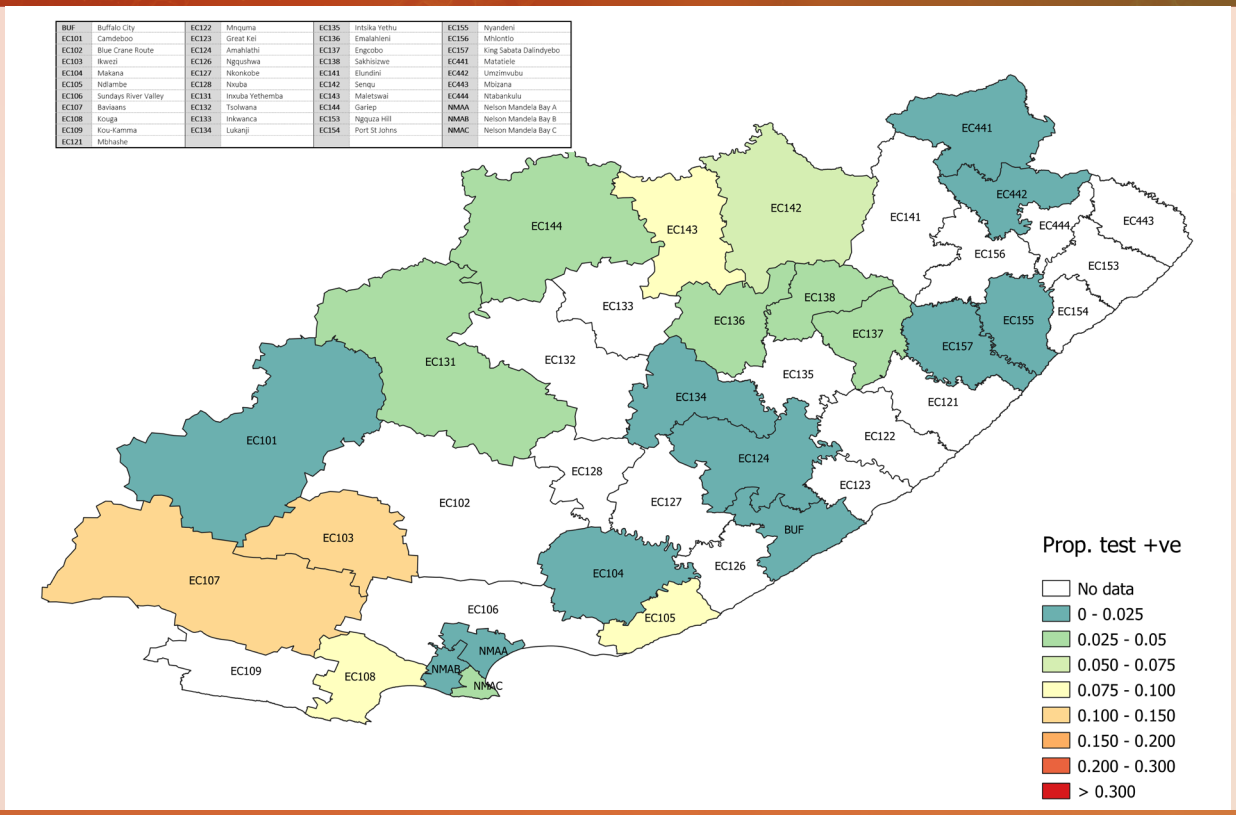

Figure 12. Proportion testing positive by health sub-district in the Eastern Cape Province for the week of 16 - 22 May 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

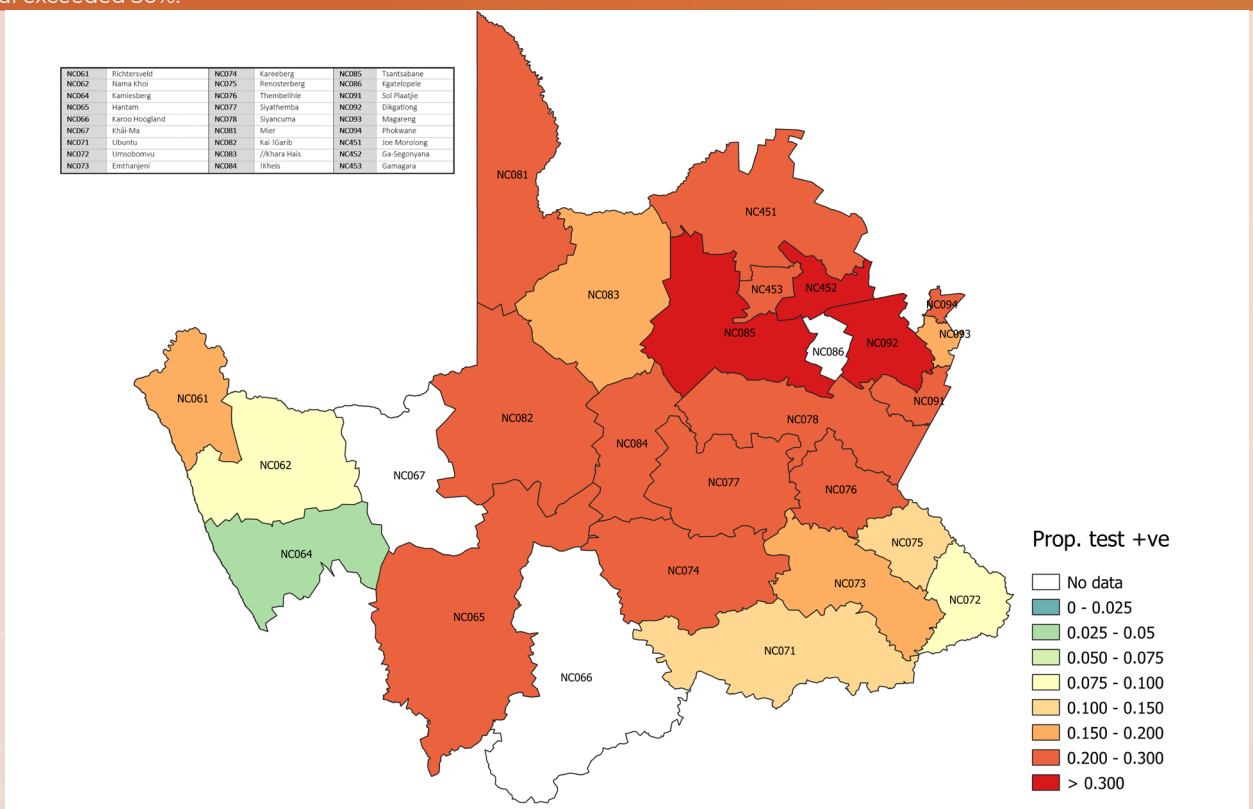

Figure 13. Proportion testing positive by health sub-district in Northern Cape Province for the week of 16 - 22 May 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

MAN	Mangaung	FS181	Masilonyana	FS191	Setsoto	FS196	Mantsopa
FS161	Letsemeng	FS182	Tokologo	FS192	Dihlabeng	FS201	Moqhaka
FS162	Kopanong	FS183	Tswelopele	FS193	Nketoana	FS203	Ngwathe
FS163	Mohokare	FS184	Matjhabeng	FS194	Maluti a Phofung	FS204	Metsimaholo
FS164	Naledi	FS185	Nala	FS195	Phumelela	FS205	Mafube

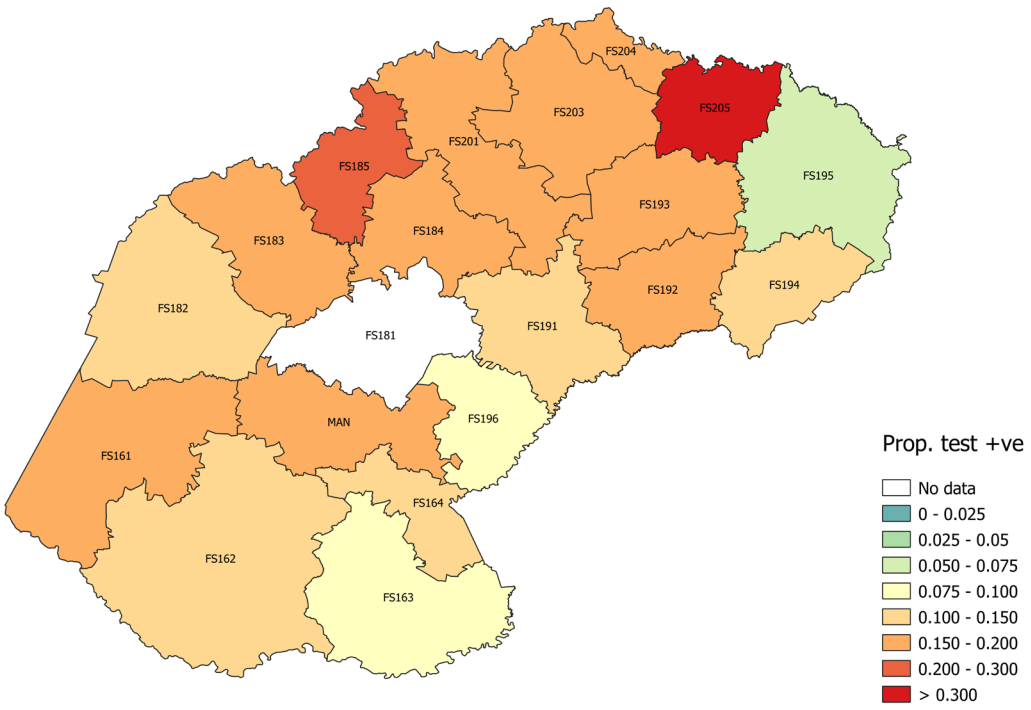

Figure 14. Proportion testing positive by health sub-district in Free State Province for the week of 16 - 22 May 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

ETHN	eThekwini North	KZN233	Indaka	KZN273	The Big 5 False Bay
ETHS	eThekwini South	KZN234	Umtshezi	KZN274	Hlabisa
ETHS	eThekwini South	KZN235	Okhahlamba	KZN275	Mtubatuba
ETHW	eThekwini West	KZN236	Imbabazane	KZN281	Mfolozi
KZN211	Vulamehlo	KZN241	Endumeni	KZN282	uMhlathuze
KZN212	Umdoni	KZN242	Nquthu	KZN283	Ntambanana
KZN213	Umzumbe	KZN244	Msinga	KZN284	uMlalazi
KZN214	uMuziwabantu	KZN245	Umvoti	KZN285	Mthonjaneni
KZN215	Ezingoleni	KZN252	Newcastle	KZN286	Nkandla
KZN216	Hibiscus Coast	KZN253	Emadlangeni	KZN291	Mandeni
KZN221	uMshwathi	KZN254	Dannhauser	KZN292	KwaDukuza
KZN222	uMngeni	KZN261	eDumbe	KZN293	Ndwedwe
KZN223	Mpofana	KZN262	uPhongolo	KZN294	Maphumulo
KZN224	Impendle	KZN263	Abaqulusi	KZN431	Ingwe
KZN225	The Msunduzi	KZN265	Nongoma	KZN432	Kwa Sani
KZN226	Mkhambathini	KZN266	Ulundi	KZN433	Greater Kokstad
KZN227	Richmond	KZN271	Umhlabuyalingana	KZN434	Ubuhlebezwe
KZN232	Emnambithi/Ladysmith	KZN272	Jozini	KZN435	Umzimkhulu

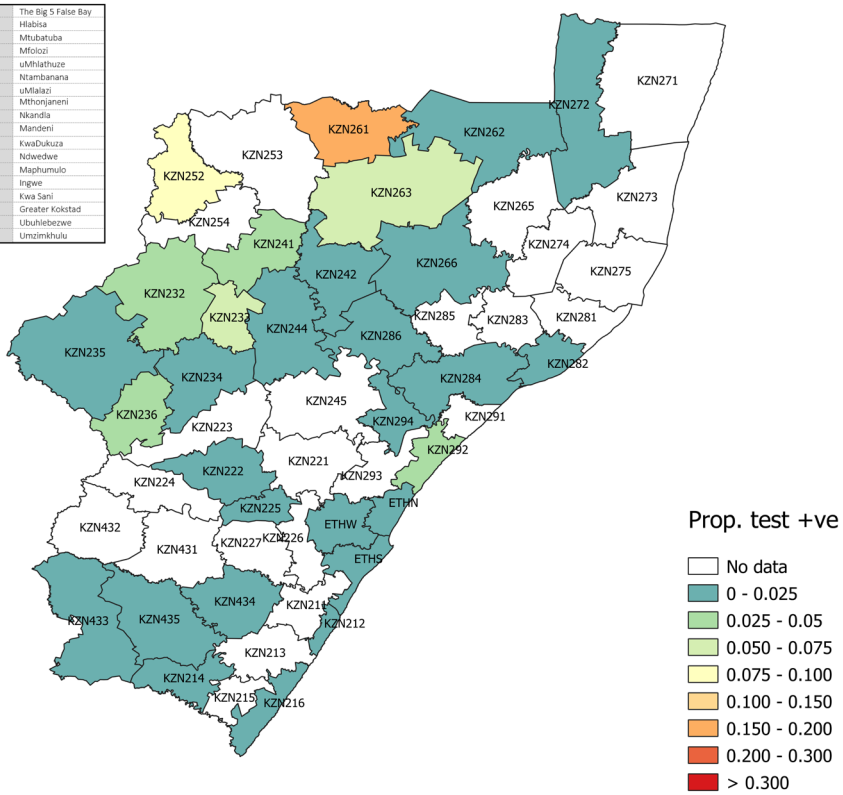

Figure 15. Proportion testing positive by health sub-district in KwaZulu-Natal Province for the week of 16 - 22 May 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

NW371	Moretele	NW383	Mafikeng	NW396	Lekwa-Teemane
NW372	Madibeng	NW384	Ditsobotla	NW397	Kagisano/Molopo
NW373	Rustenburg	NW385	Ramotshere Moiloa	NW401	Ventersdorp
NW374	Kgetlengrivier	NW392	Naledi	NW402	Tlokwe City Council
NW375	Moses Kotane	NW393	Mamusa	NW403	City of Matlosana
NW381	Ratlou	NW394	Greater Taung	NW404	Maquassi Hills
NW382	Tswaing				

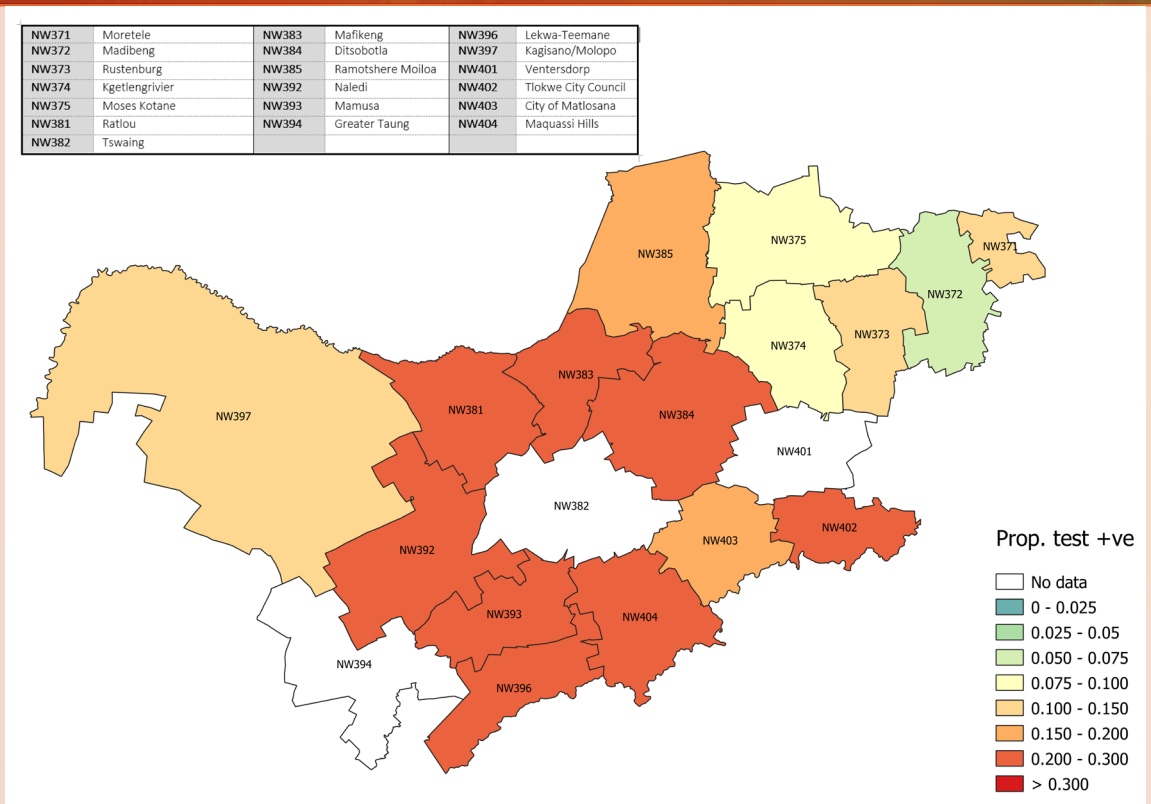

Figure 16. Proportion testing positive by health sub-district in North West Province for the week of 16 - 22 May 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

EKUE1	Ekurhuleni East 1	GT421	Emfuleni	JHBA	Johannesburg A	TSH1	Tshwane 1
EKUE2	Ekurhuleni East 2	GT422	Midvaal	JHBB	Johannesburg B	TSH2	Tshwane 2
EKUN1	Ekurhuleni North 1	GT423	Lesedi	JHBC	Johannesburg C	TSH3	Tshwane 3
EKUN2	Ekurhuleni North 2	GT481	Mogale City	JHBD	Johannesburg D	TSH4	Tshwane 4
EKUS1	Ekurhuleni South 1	GT482	Randfontein	JHBE	Johannesburg E	TSH5	Tshwane 5
EKUS2	Ekurhuleni South 2	GT483	Westonaria	JHBF	Johannesburg F	TSH6	Tshwane 6
		GT484	Merafong City	JHBG	Johannesburg G	TSH7	Tshwane 7

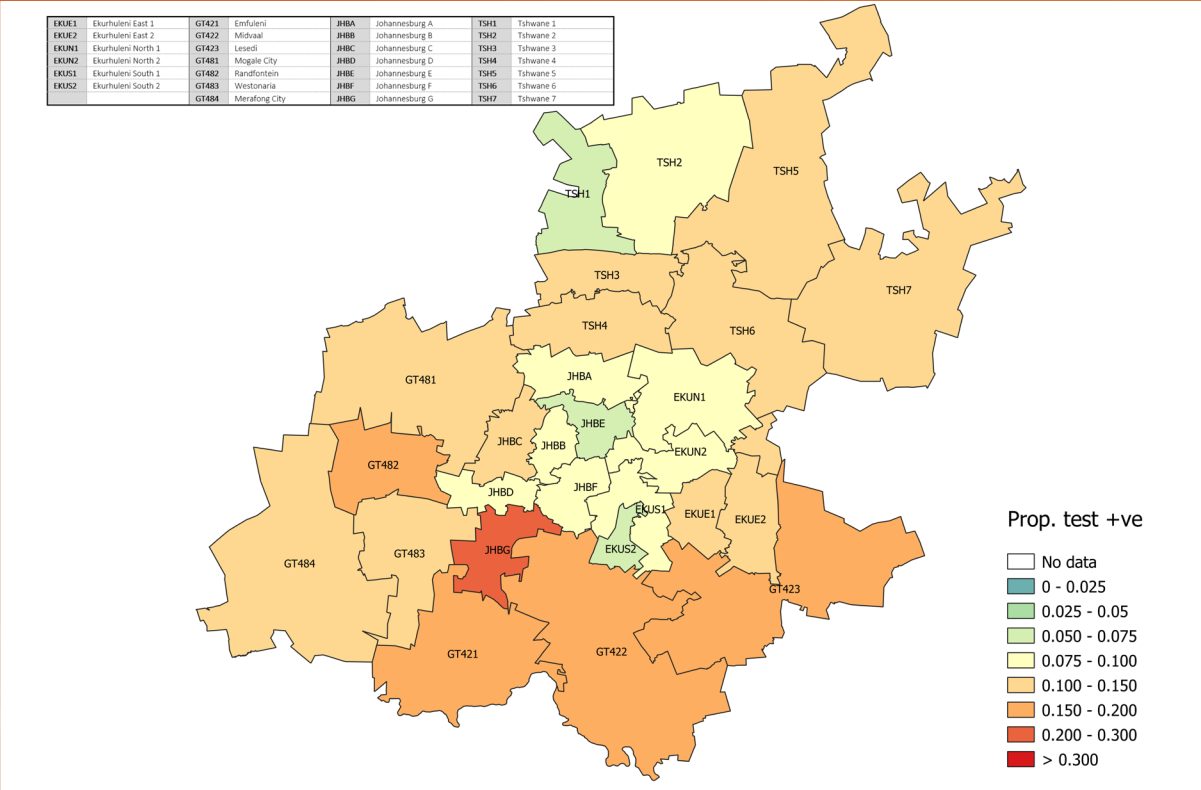

Figure 17. Proportion testing positive by health sub-district in Gauteng Province for the week of 16 - 22 May 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

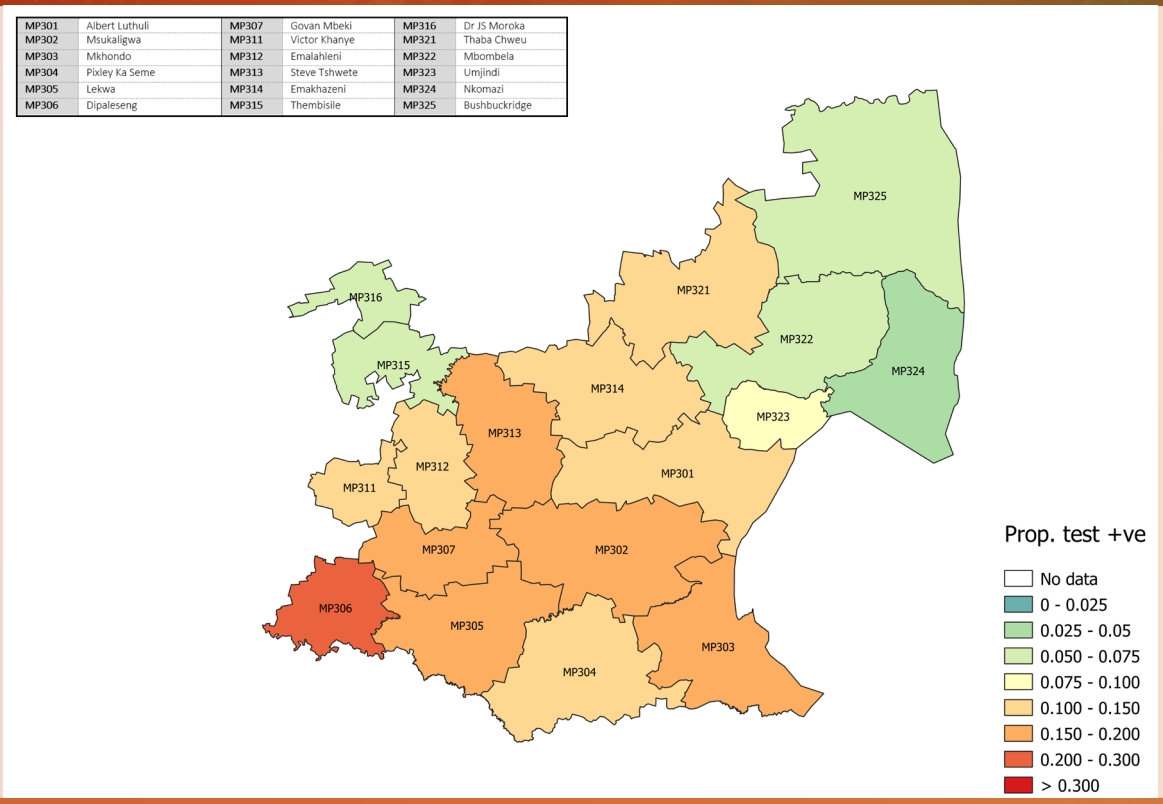

Figure 18. Proportion testing positive by health sub-district in Mpumalanga Province for the week of 16 - 22 May 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

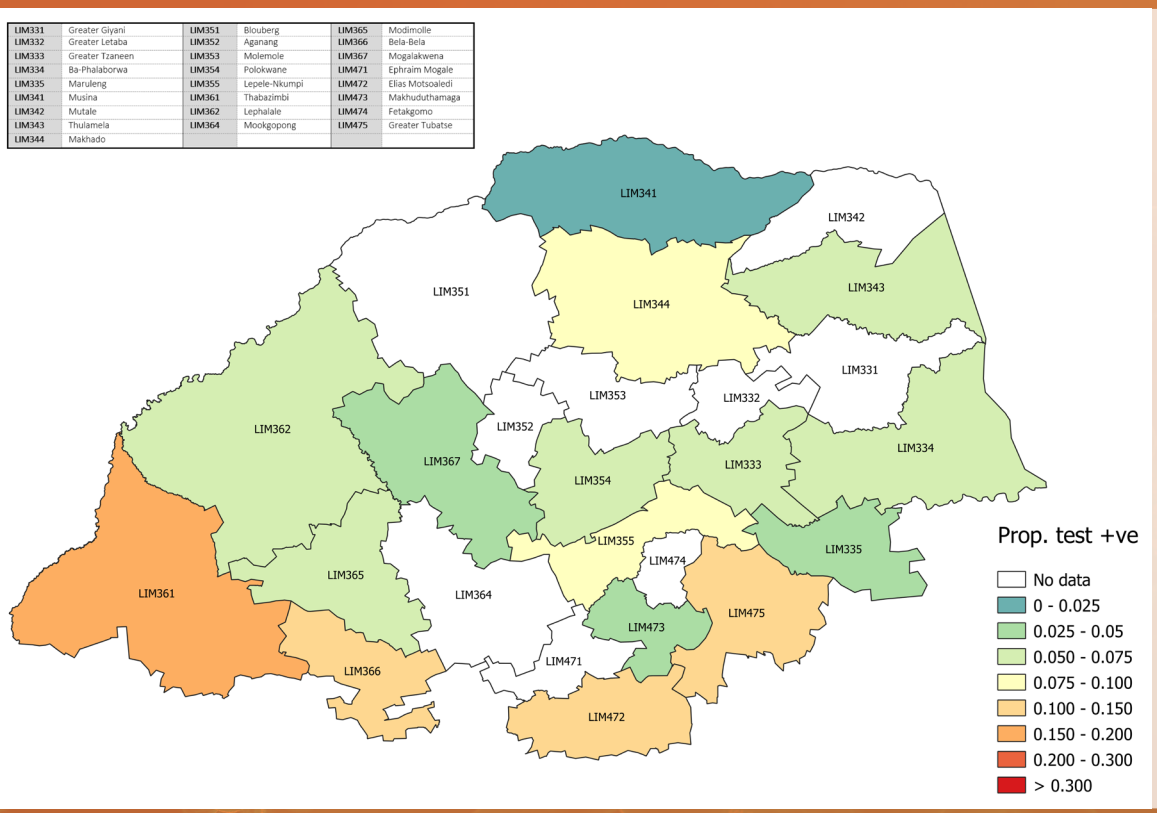

Figure 19. Proportion testing positive by health sub-district in Limpopo Province for the week of 16 - 22 May 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

Testing by patient admission status

In week 20 of 2021, 37.4% of reported tests were for hospitalised patients; 55.7% in the public sector and 26.2% in the private sector (Figure 20). The percentage testing positive in week 20 was higher among outpatients (11.6%) compared to inpatients (7.3%), with increases observed in both groups (Figure 21). In week 20 the mean laboratory turnaround time for PCR tests in the public sector continued to be lower for inpatients (1.4 days) compared to outpatients (2.1 days) (Figure 22).

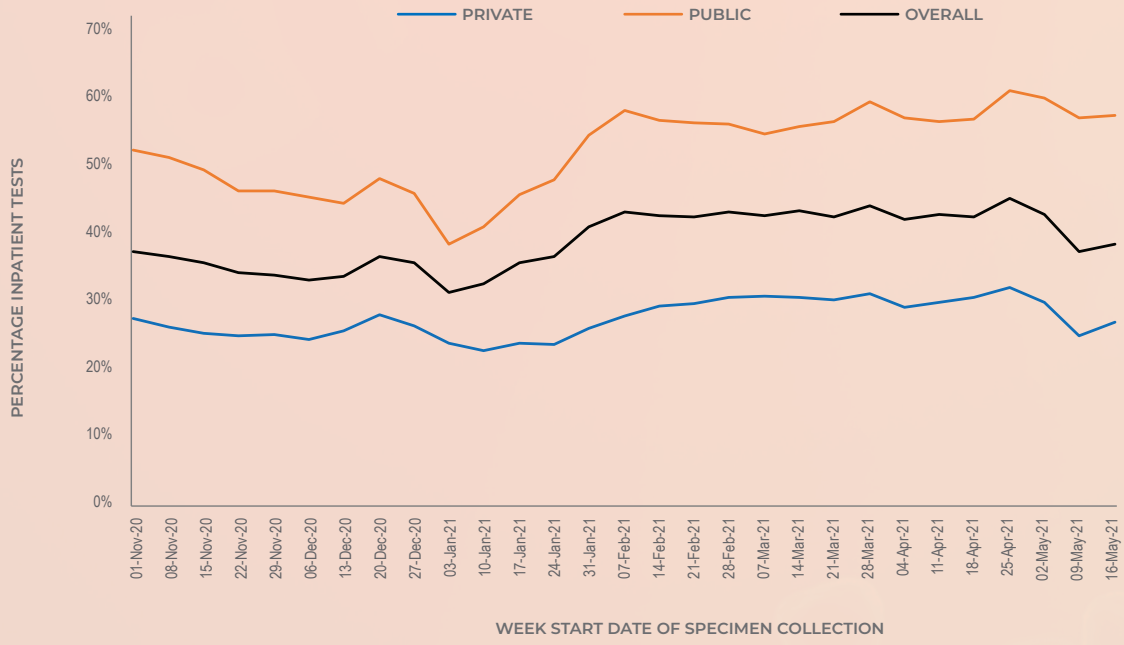

Figure 20. Percentage of inpatient tests reported by health sector, 1 November 2020 – 22 May 2021

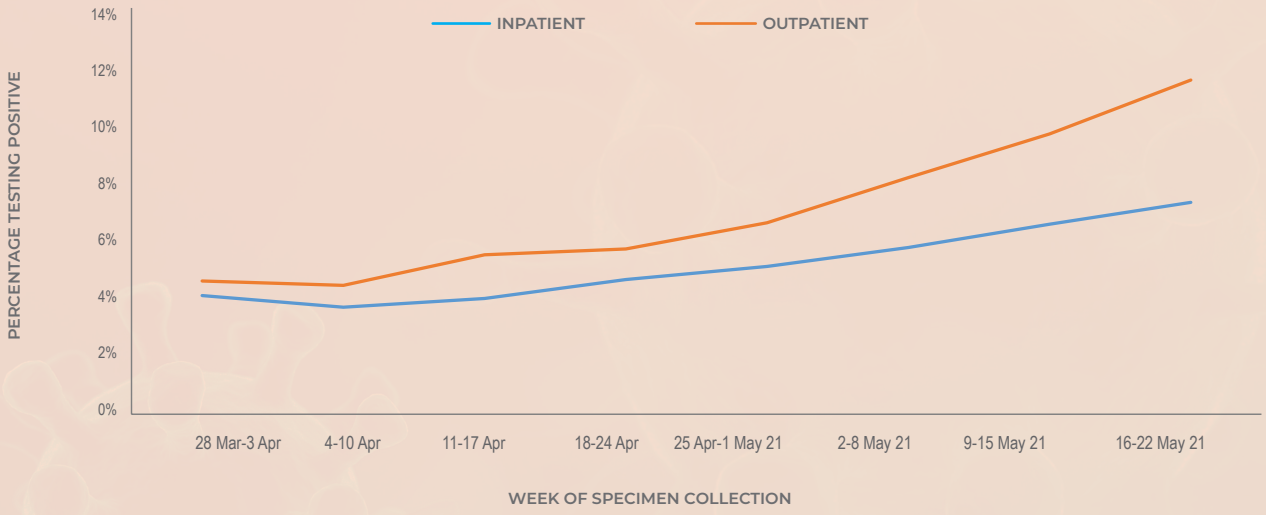

Figure 21. Percentage testing positive by patient admission status, 28 March – 22 May 2021

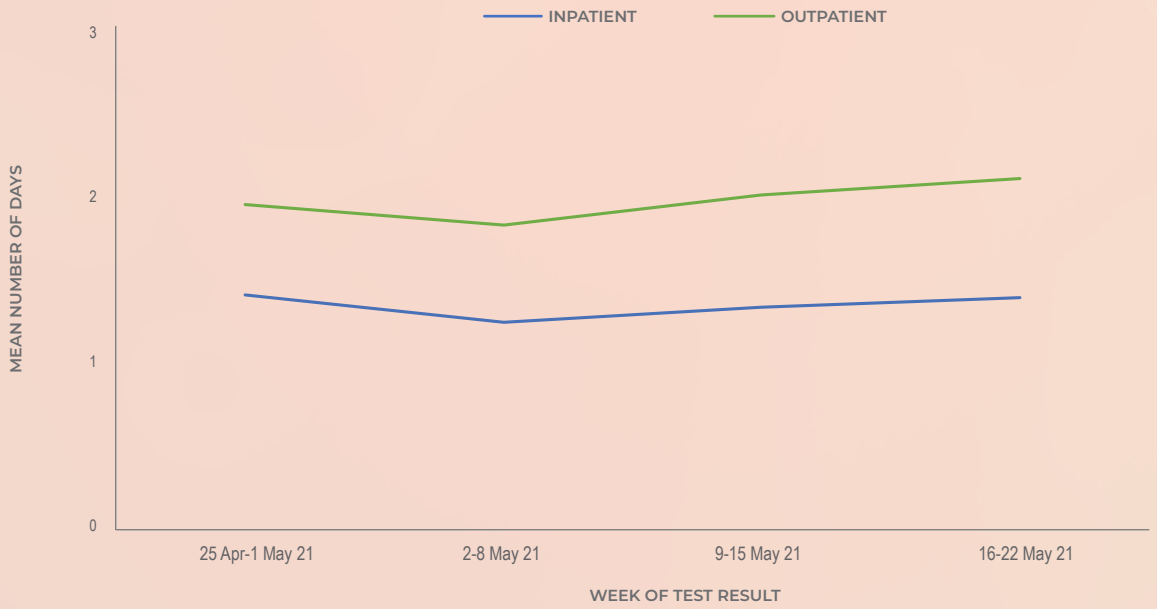

Figure 22. Mean number of days between date of specimen collection and date of test result for PCR tests in the public sector by patient admission status, 25 April – 22 May 2021

Testing by age and sex

The mean age of individuals tested in week 20 of 2021 was 39.1 years, and was similar among males (39.3 years) and females (39.0 years). The majority of reported tests were in individuals in the 20-59 years' age group, with a peak in the 50-54 year age group (Figure 23). In week 20, the testing rate was higher in females (382 per 100,000 persons) than in males (357 per 100,000 persons) (Figure 24). Testing rates in week 20 were highest in the 50-54 year age group in females (711 per 100,000 persons), and in males testing rates were highest in the 80+ year age group (919 per 100,000 persons). The percentage testing positive was highest in individuals aged 65-69 years (12.5%). In males, the percentage testing positive was highest in individuals aged 15-19 years (12.6%). In females, the highest percentage testing positive was observed in individuals aged 60-64 years (13.6%).

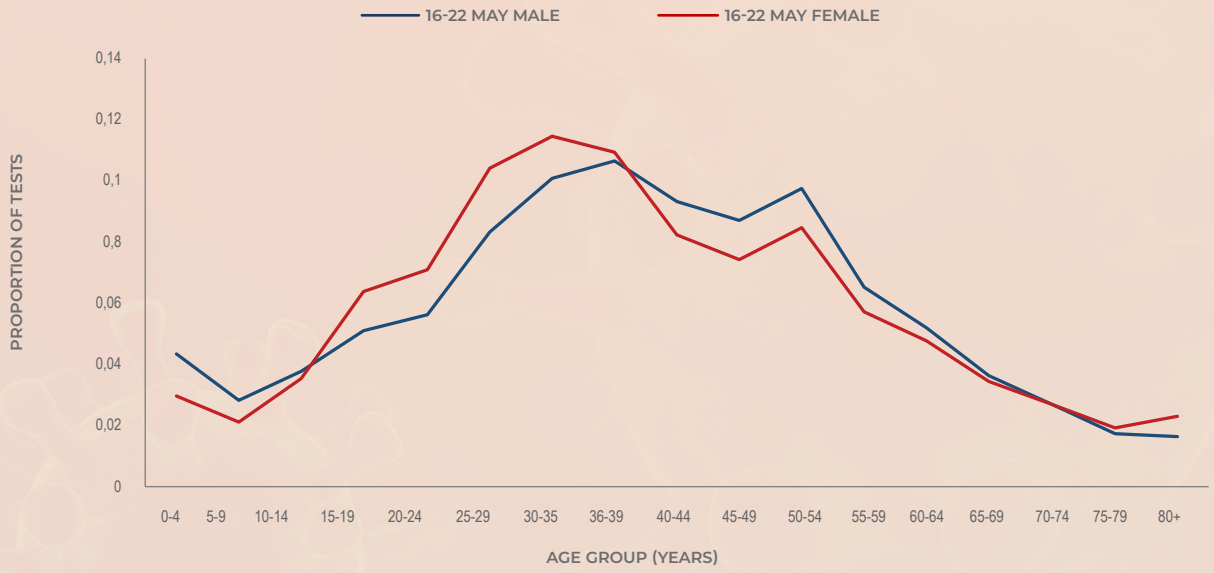

Figure 23. Proportion of tests by age group and sex, South Africa, week 20, 16 - 22 May 2021

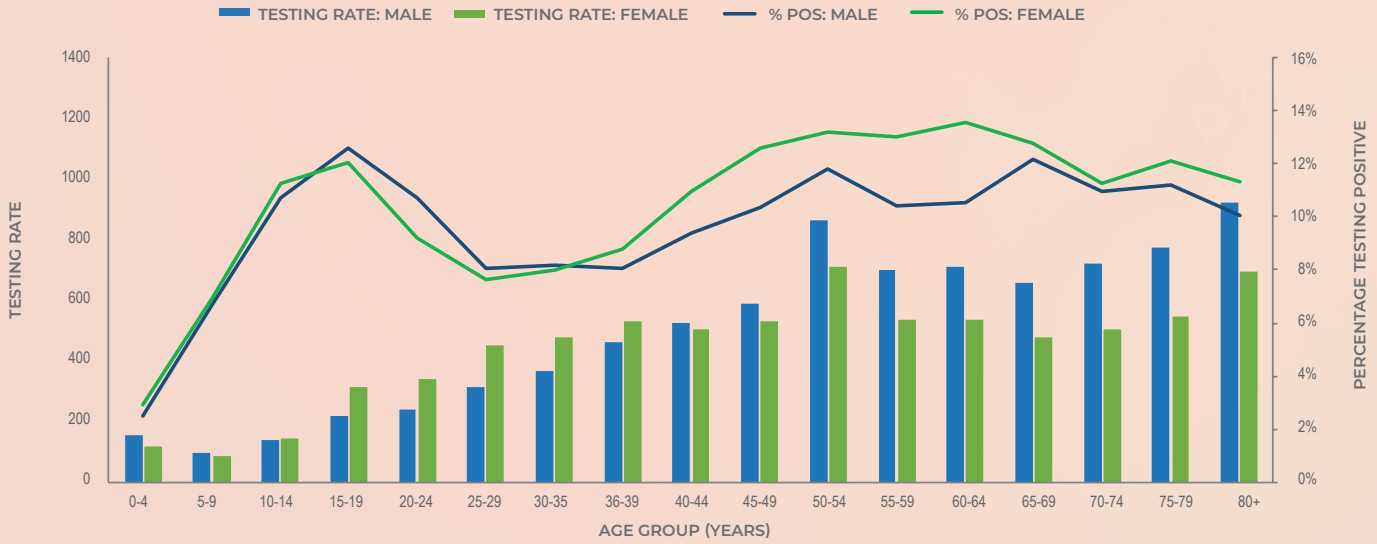

Figure 24. Testing rates per 100,000 persons and percentage testing positive by age group and sex, South Africa, week 20, 16 - 22 May 2021

Testing by test type

Up to the end of week 20 of 2021, 8.3% (935,250/ 11,298,963) of all reported tests were antigen tests. The percentage of antigen tests decreased in the past week, and in week 20 16.8% of reported tests were antigen-based (Figure 25). Overall, 78.7% of antigen tests have been performed in the public sector and in week 20 the public sector accounted for 50.2% (18,939/ 37,699) of antigen tests. The majority of antigen tests have been reported in KwaZulu-Natal (42.1%), Eastern Cape (12.4%) and Gauteng (12.7%) provinces. The number of antigen tests decreased in all provinces except in Limpopo in the past week, however this may be due to delays in reporting of antigen test results. The percentage testing positive was higher for PCR tests compared to antigen tests, and in week 20 it was 11.1% for PCR tests and 4.3% for antigen tests (Figure 26). The mean turnaround time for antigen tests reported in week 20 was 3.3 days in the public sector and 0.1 day in the private sector (Figure 27). Not all antigen tests are reported, efforts are ongoing to improve reporting.

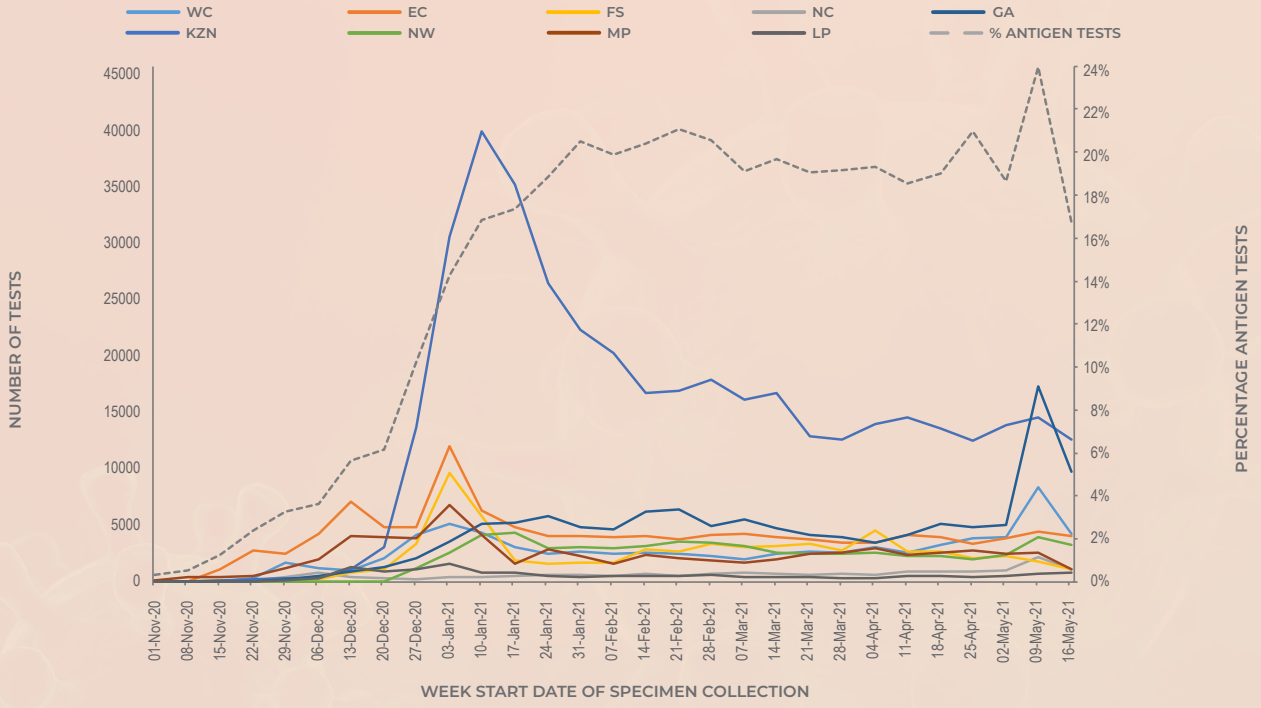

Figure 25. Number of antigen tests by province, and overall percentage antigen tests, South Africa, 1 November 2020 – 22 May 2021. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal; GT, Gauteng; NC, Northern Cape; NW, North West; MP, Mpumalanga; LP, Limpopo

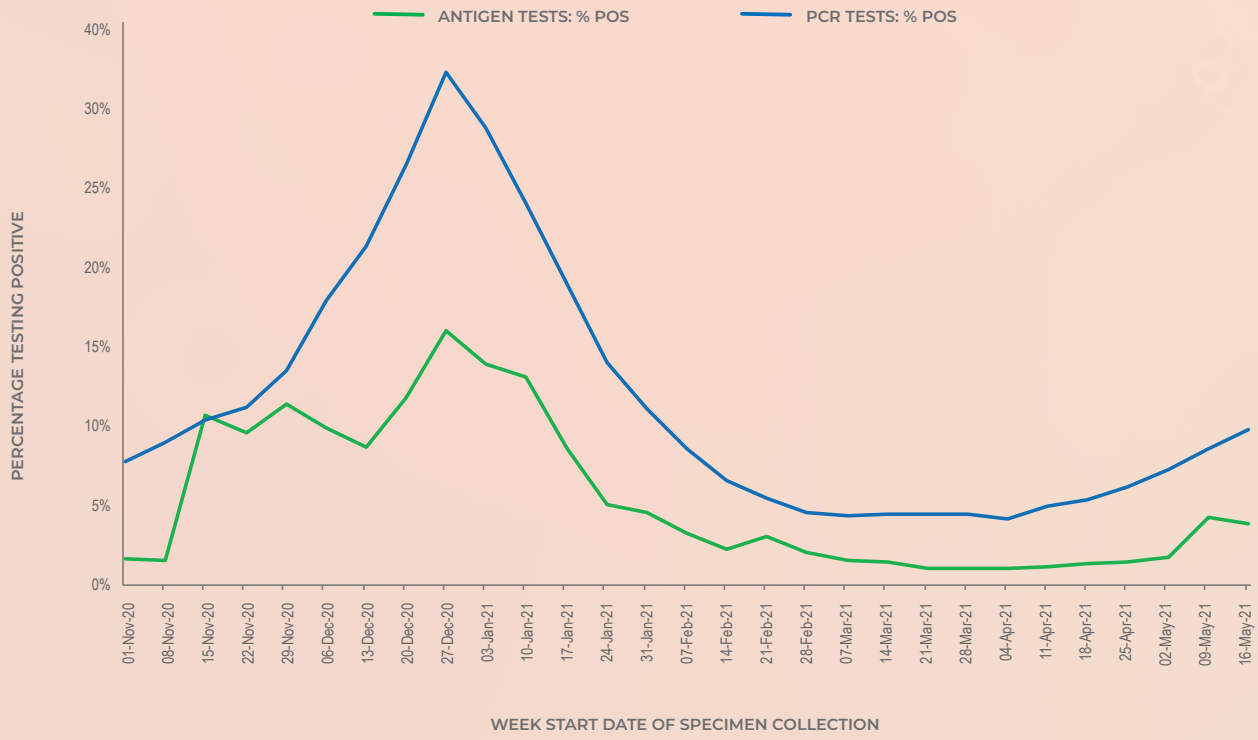

Figure 26. Percentage of laboratory tests positive for SARS-CoV-2 by test type and date of specimen collection, South Africa, 1 November 2020 – 22 May 2021

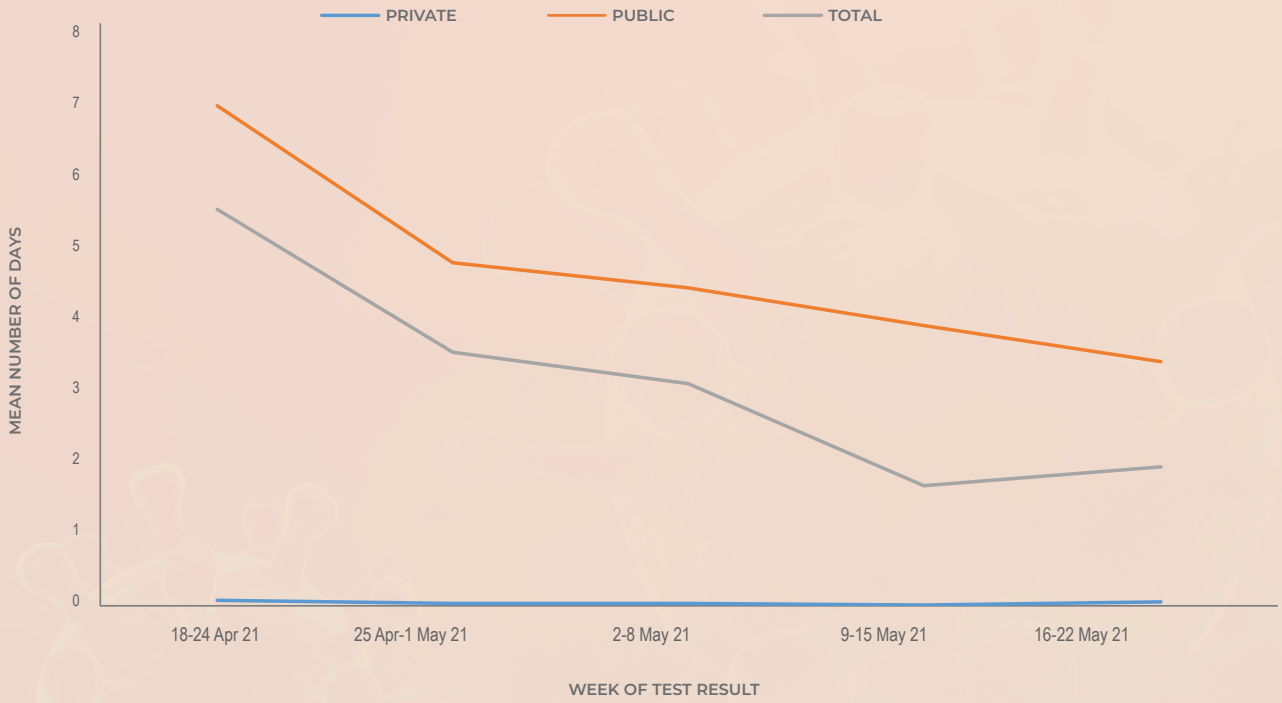

Figure 27. Mean number of days between date of specimen collection and date of test result for antigen tests, by week of test result, South Africa, 18 Apr – 22 May 2021

Limitations

- A backlog in testing of samples by laboratories affects the reported number of tests. As a result, numbers tested during this period may change in subsequent reports.
- If higher-priority specimens were tested preferentially, this would likely result in an inflated proportion testing positive.
- Different and changing testing strategies (targeted vs. mass testing and PCR vs. antigen-based tests) used by different provinces makes percentage testing positive and number of reported tests difficult to interpret and compare.
- Health district and sub-district level were mapped based on the testing facility and not place of residence.
- Patient admission status was categorised based on the reported patient facility and may not reflect whether the patient was actually admitted to hospital.
- Antigen tests may be underestimated as they are used in a number of different settings and results may not be reported.

CONCLUSIONS

The number of tests reported in week 20 (n=225,055) was similar to the previous week and higher than recent weeks. Gauteng (39.4%), Western Cape (14.7%) and KwaZulu-Natal (14.8%) provinces reported the largest number of tests in week 20. The overall testing rate in week 20 was 377 per 100,000 persons; highest in the Northern Cape (905 per 100,000 persons) and lowest in Limpopo (82 per 100,000 persons). Testing rates decreased most notably in the Western Cape and Free State provinces. Antigen tests accounted for 16.8% (37,699/225,055) of all tests reported in week 20. The overall mean laboratory turnaround time for PCR tests was 1.0 day in week 20; 1.8 days in the public sector and 0.7 days in the private sector.

The percentage testing positive has increased in recent weeks and in week 20 of 2021 the percentage testing positive was 9.9%, which increased by 1.4% compared to the previous week. The percentage testing positive in week 20 was highest in the Northern Cape (25.0%), Free State (18.8%), North West (16.5%), Mpumalanga (10.9%) and Gauteng (10.8%) provinces. The percentage testing positive was <10% in all other provinces. Compared to the previous week, the percentage testing positive increased in the Eastern Cape, KwaZulu-Natal, North West, Gauteng, Mpumalanga, Free State and Limpopo provinces. The percentage testing positive was unchanged in the Northern Cape and Western Cape provinces.