COVID-19 TESTING SUMMARY

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

SOUTH AFRICA | WEEK **23** 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 12 June 2021 (Week 23 of 2021).

HIGHLIGHTS

- In the period 1 March 2020 through 12 June 2021, 12,139,885 (11,038,709 PCR and 1,101,176 antigen) tests for SARS-CoV-2 have been reported nationally.
- The number of tests reported in week 23 of 2021 (n=301,818) was higher than the previous week.
- The testing rate in week 23 was 506 per 100,000 persons; highest in Gauteng (882 per 100,000 persons) and lowest in Limpopo (114 per 100,000 persons).
- In week 23 the percentage testing positive was 17.9%, which was 4.1% higher than the previous week.
- The percentage testing positive in week 23 was highest in the Gauteng (24.4%), North West (21.7%), Northern Cape (20.8%), Free State (18.2%), Limpopo (16.9%), Mpumalanga (16.1%) and Western Cape (11.3%) provinces. The percentage testing positive was less than 10% in the Eastern Cape and KwaZulu-Natal.
- In week 23, compared to the previous week, the percentage testing positive increased in all provinces except in the Northern Cape, where it remained unchanged.
- The number of tests reported is likely underestimated as antigen tests are increasingly being used outside of laboratory settings and reporting may be delayed or 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 12 June 2021 (week 23 of 2021).

Testing volumes and proportion testing positive

From 1 March 2020 through 12 June 2021, 12,139,885 SARS-CoV-2 tests were reported; 11,038,709 PCR and 1,101,176 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=307,913), and subsequently decreased. Weekly testing volumes increased again from week 48 of 2020 (beginning 22 November 2020), with the highest weekly number of tests since the start of the pandemic reported in week 1 of 2021 (n=500,980). In week 23 of 2021, 301,818 tests were reported, higher than the volume of tests reported in the previous week. 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).

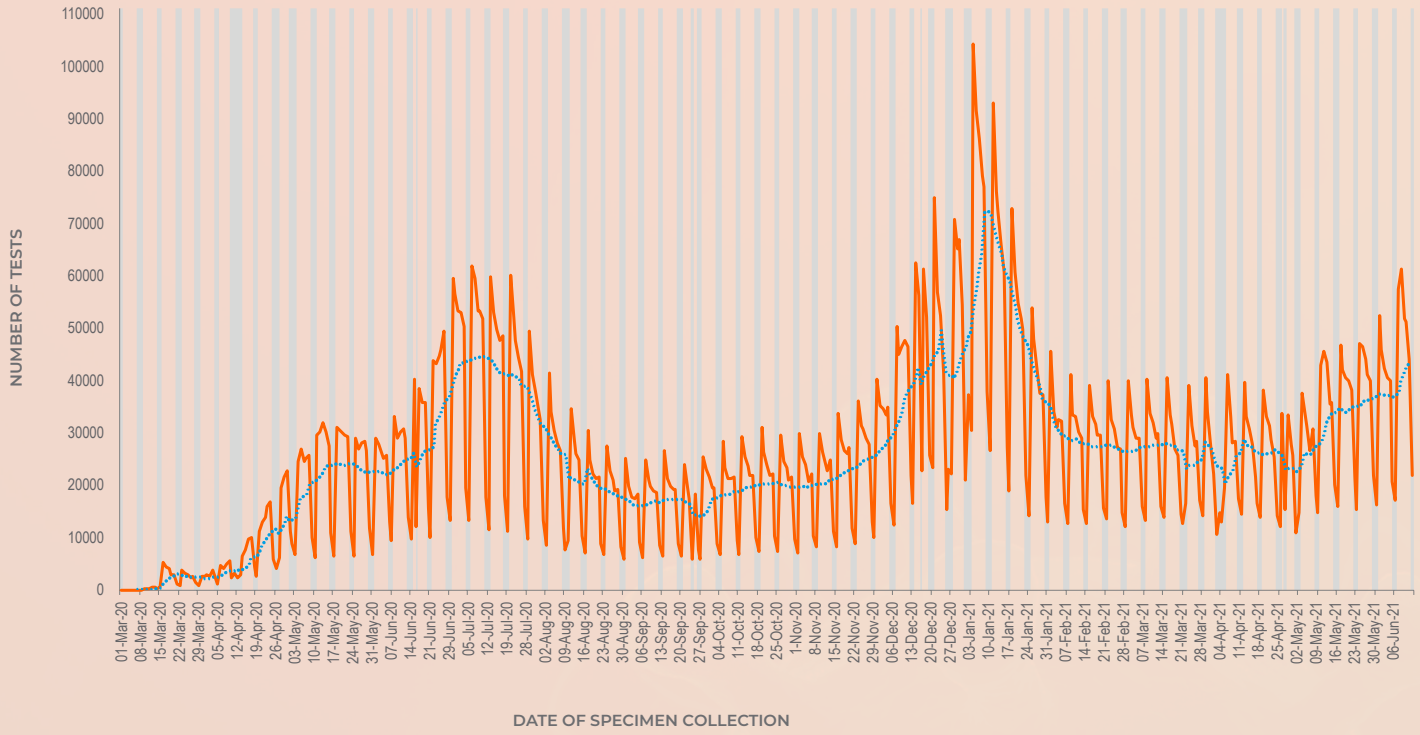

Figure 1. Number of SARS-CoV-2 tests reported by date of specimen collection, South Africa, 1 March 2020 – 12 June 2021. Blue dotted line shows the 7-day moving average of the number of tests reported. Grey bars highlight weekend days and public holidays.

The overall percentage testing positive from week 10 of 2020 through week 23 of 2021 was 15.2% (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 23 of 2021 was 17.9%, 4.1% higher than observed in the previous week (13.8%, P<0.001) and higher than observed since end January 2021 (Figure 2).

Table 1. Weekly number of SARS-CoV-2 tests and positive tests reported, South Africa, 1 March 2020 – 12 June 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 (0.1)	544	3.1
14	29-Mar-20	18249 (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	142710 (1.2)	6018	4.2
20	10-May-20	165374 (1.4)	8092	4.9
21	17-May-20	166544 (1.4)	11379	6.8
22	24-May-20	156139 (1.3)	12967	8.3
23	31-May-20	153570 (1.3)	15079	9.8
24	07-Jun-20	173903 (1.4)	22362	12.9
25	14-Jun-20	186081 (1.5)	32649	17.5
26	21-Jun-20	252097 (2.1)	55049	21.8
27	28-Jun-20	302743 (2.5)	75309	24.9
28	05-Jul-20	307913 (2.5)	86039	27.9
29	12-Jul-20	285599 (2.4)	84927	29.7
30	19-Jul-20	270896 (2.2)	78636	29.0
31	26-Jul-20	216393 (1.8)	58393	27.0
32	02-Aug-20	179573 (1.5)	40996	22.8
33	09-Aug-20	141103 (1.2)	26265	18.6
34	16-Aug-20	135013 (1.1)	21377	15.8
35	23-Aug-20	123333 (1.0)	16331	13.2
36	30-Aug-20	112762 (0.9)	12790	11.3
37	06-Sep-20	116997 (1.0)	11953	10.2
38	13-Sep-20	120714 (1.0)	12011	9.9
39	20-Sep-20	98818 (0.8)	10098	10.2
40	27-Sep-20	123062 (1.0)	11008	8.9
41	04-Oct-20	131043 (1.1)	11778	9.0
42	11-Oct-20	137974 (1.1)	12077	8.8
43	18-Oct-20	142170 (1.2)	12069	8.5
44	25-Oct-20	135848 (1.1)	11478	8.4
45	01-Nov-20	138820 (1.1)	12135	8.7
46	08-Nov-20	147007 (1.2)	14845	10.1
47	15-Nov-20	160643 (1.3)	18762	11.7
48	22-Nov-20	175685 (1.4)	22051	12.6
49	29-Nov-20	203146 (1.7)	30766	15.1
50	06-Dec-20	267916 (2.2)	53310	19.9
51	13-Dec-20	294454 (2.4)	68575	23.3
52	20-Dec-20	284546 (2.3)	81957	28.8
53	27-Dec-20	334378 (2.8)	115730	34.6
1	03-Jan-21	500980 (4.1)	151005	30.1
2	10-Jan-21	417848 (3.4)	104769	25.1

3	17-Jan-21	327284 (2.7)	63237	19.3
4	24-Jan-21	249381 (2.1)	34617	13.9
5	31-Jan-21	203418 (1.7)	22329	11.0
6	07-Feb-21	193095 (1.6)	16445	8.5
7	14-Feb-21	190212 (1.6)	12129	6.4
8	21-Feb-21	184254 (1.5)	10356	5.6
9	28-Feb-21	189181 (1.6)	8666	4.6
10	07-Mar-21	192520 (1.6)	8308	4.3
11	14-Mar-21	185030 (1.5)	8127	4.4
12	21-Mar-21	171467 (1.4)	7324	4.3
13	28-Mar-21	162941 (1.3)	7039	4.3
14	04-Apr-21	179328 (1.5)	7258	4.0
15	11-Apr-21	182626 (1.5)	8802	4.8
16	18-Apr-21	182970 (1.5)	9420	5.1
17	25-Apr-21	157625 (1.3)	9146	5.8
18	02-May-21	190897 (1.6)	13376	7.0
19	09-May-21	236024 (1.9)	19781	8.4
20	16-May-21	242986 (2.0)	24035	9.9
21	23-May-21	253945 (2.1)	29435	11.6
22	30-May-21	255855 (2.1)	35435	13.8
23	06-Jun-21	301818 (2.5)	54014	17.9
	Total	**12,139,885(100.0)**	**1,849,865**	**15.2**

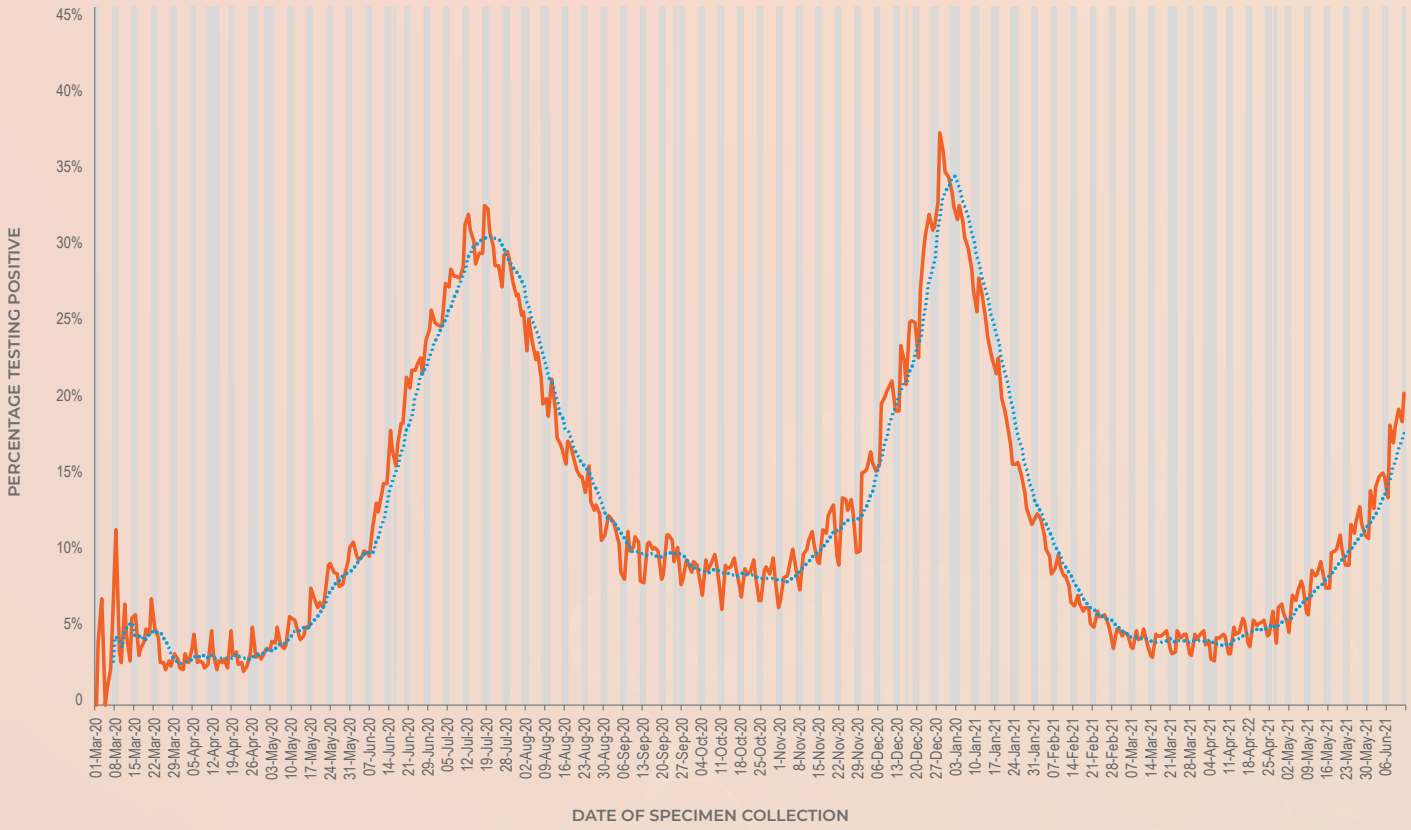

Figure 2. Percentage of tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March 2020 – 12 June 2021. Blue dotted line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

Testing in private and public sectors

From 1 March 2020 through 12 June 2021, 5,271,337 tests were reported in the public sector, with 15.6% testing positive. Over this same period, the private sector reported 6,868,548 tests, with 15.0% testing positive (Table 2). Overall, the public sector has reported 43.4% of tests and accounted for 44.4% 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 22 to week 23 of 2021, the percentage testing positive increased in the public sector (11.5% in week 22 to 13.2% in week 23, P<0.001) and to a greater extent in the private sector (15.4% in week 22 to 20.9% in week 23, P<0.001). In week 23 the percentage testing positive in the private sector (20.9%) was 7.7% higher than in the public sector (13.2%, P<0.001).

The mean turnaround time for PCR tests reported in week 23 of 2021 was 1.0 day; 1.9 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 (3.4 days) and Free State (3.1 days) in week 23 (Figure 4). Slight Increases in turnaround times were observed in the Eastern Cape and Limpopo provinces whilst a decrease in turnaround time of 1.2 days was observed in the North West province in the past week. Twenty-three of the 28 (82.1%) NHLS laboratories performing PCR testing for SARS-CoV-2 had turnaround times ≤2 days in week 22 (Figure 5).

Table 2. Weekly number of tests and positive tests reported, by healthcare sector, South Africa, 1 March 2020 – 12 June 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)	12381	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)	48372	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)	78542	6556 (8.3)	49.7	49.4	0.990
23	31-May-20	63945	6626 (10.4)	89625	8453 (9.4)	41.6	43.9	1.099
24	07-Jun-20	64655	8039 (12.4)	109248	14323 (13.1)	37.2	35.9	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	106371	27244 (25.6)	196372	48065 (24.5)	35.1	36.2	1.046
28	05-Jul-20	117727	32239 (27.4)	190186	53800 (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	105217	30319 (28.8)	165679	48317 (29.2)	38.8	38.6	0.988
31	26-Jul-20	81247	22782 (28.0)	135146	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)	65942	5532 (8.4)	43.6	53.7	1.499
38	13-Sep-20	53707	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)	86047	6024 (7.0)	39.5	50.1	1.539
44	25-Oct-20	51286	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)	93061	8178 (8.8)	42.1	56.4	1.782
48	22-Nov-20	74572	12199 (16.4)	101113	9852 (9.7)	42.4	55.3	1.679
49	29-Nov-20	81269	15730 (19.4)	121877	15036 (12.3)	40.0	51.1	1.569
50	06-Dec-20	107909	24715 (22.9)	160007	28595 (17.9)	40.3	46.4	1.282
51	13-Dec-20	117212	29815 (25.4)	177242	38760 (21.9)	39.8	43.5	1.163
52	20-Dec-20	109911	34128 (31.1)	174635	47829 (27.4)	38.6	41.6	1.134
53	27-Dec-20	151625	52930 (34.9)	182753	62800 (34.4)	45.3	45.7	1.016
1	03-Jan-21	236880	71048 (30.0)	264100	79957 (30.3)	47.3	47.1	0.991
2	10-Jan-21	203962	52946 (26.0)	213886	51823 (24.2)	48.8	50.5	1.071
3	17-Jan-21	165612	34448 (20.8)	161672	28789 (17.8)	50.6	54.5	1.168
4	24-Jan-21	123191	18982 (15.4)	126190	15635 (12.4)	49.4	54.8	1.244
5	31-Jan-21	99598	12039 (12.1)	103820	10290 (9.9)	49.0	53.9	1.220
6	07-Feb-21	91190	8490 (9.3)	101905	7955 (7.8)	47.2	51.6	1.193
7	14-Feb-21	86057	6633 (7.7)	104155	5496 (5.3)	45.2	54.7	1.461
8	21-Feb-21	82341	5774 (7.0)	101913	4582 (4.5)	44.7	55.8	1.560
9	28-Feb-21	87747	4663 (5.3)	101434	4003 (3.9)	46.4	53.8	1.347
10	07-Mar-21	92074	4570 (5.0)	100446	3738 (3.7)	47.8	55.0	1.334
11	14-Mar-21	89499	4427 (4.9)	95531	3700 (3.9)	48.4	54.5	1.277
12	21-Mar-21	75883	3442 (4.5)	95584	3882 (4.1)	44.3	47.0	1.117
13	28-Mar-21	70538	3445 (4.9)	92403	3594 (3.9)	43.3	48.9	1.256
14	04-Apr-21	78154	3338 (4.3)	101174	3920 (3.9)	43.6	46.0	1.102

15	11-Apr-21	84006	4339 (5.2)	98620	4463 (4.5)	46.0	49.3	1.141
16	18-Apr-21	78808	4675 (5.9)	104162	4745 (4.6)	43.1	49.6	1.302
17	25-Apr-21	68330	4097 (6.0)	89295	5049 (5.7)	43.3	44.8	1.060
18	02-May-21	78384	5420 (6.9)	112513	7956 (7.1)	41.1	40.5	0.978
19	09-May-21	88427	7251 (8.2)	147597	12530 (8.5)	37.5	36.7	0.966
20	16-May-21	96220	9037 (9.4)	146766	14998 (10.2)	39.6	37.6	0.919
21	23-May-21	114694	11600 (10.1)	139251	17835 (12.8)	45.2	39.4	0.790
22	30-May-21	99967	11449 (11.5)	155888	23986 (15.4)	39.1	32.3	0.744
23	06-Jun-21	117175	15482 (13.2)	184643	38532 (20.9)	38.8	28.7	0.633
	Total	**5,271,337**	**820,781(,15.6)**	**6,868,548**	**1,029,084(,15.0)**	**43.4**	**44.4**	**1.039**

[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)

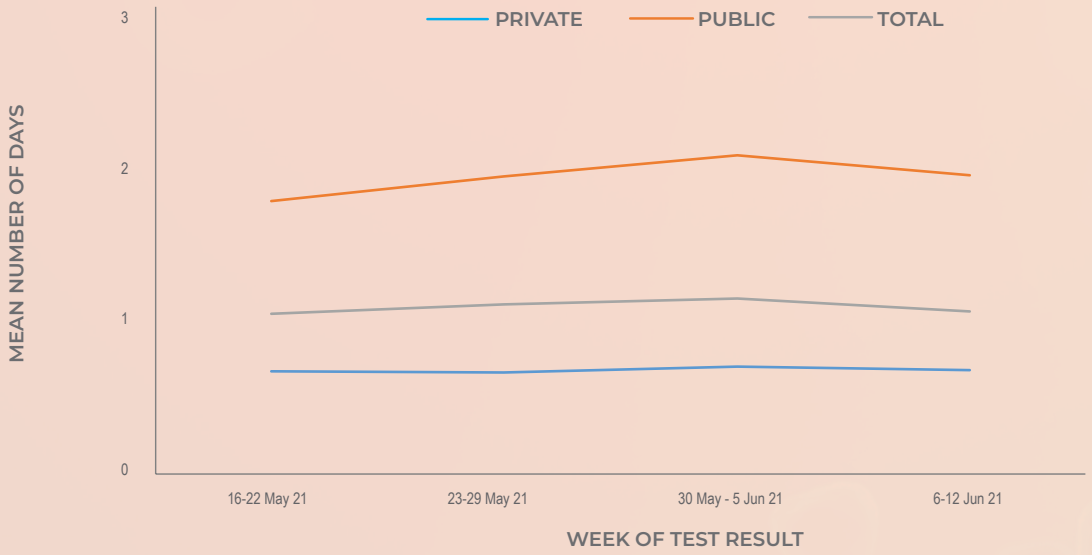

Figure 3. Mean number of days between date of specimen collection and date of test result for PCR tests, by week of test result, South Africa, 16 May – 12 June 2021

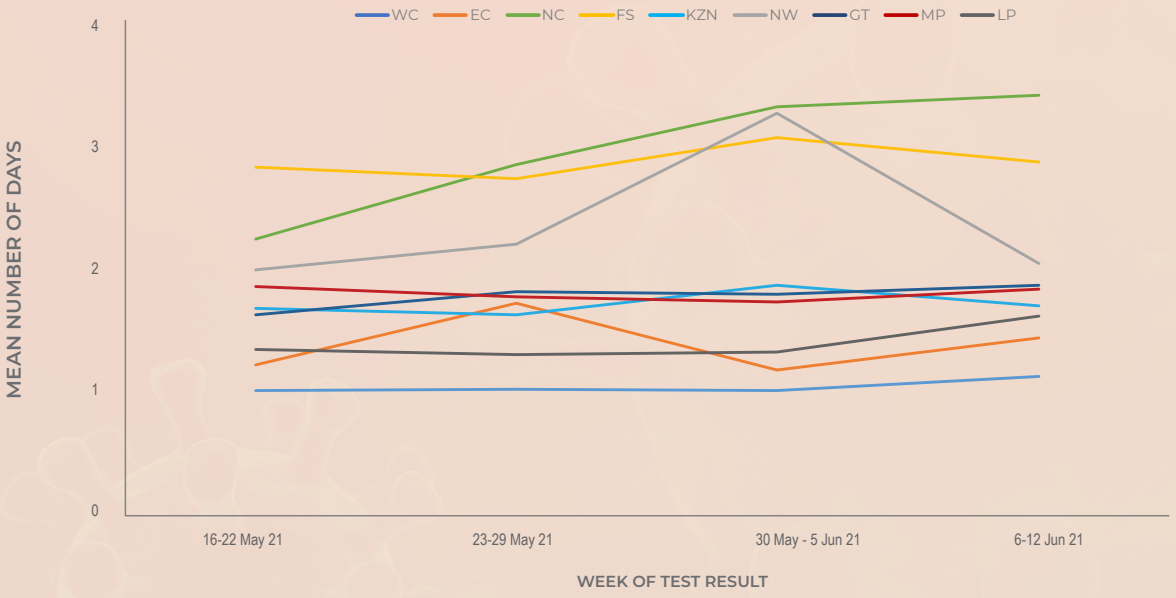

Figure 4. Mean number of days between date of specimen collection and date of test result for PCR tests, by week of test result and province, public sector, South Africa, 16 May – 12 June 2021. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal; GT, Gauteng; NC, Northern Cape; NW, North West; MP, Mpumalanga; LP, Limpopo

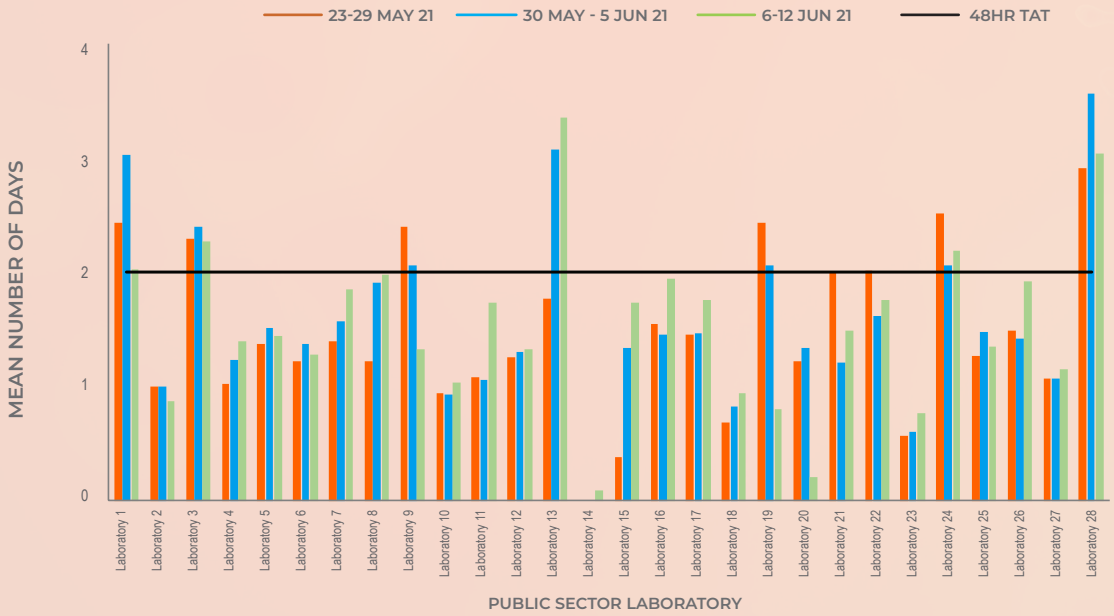

Figure 5. Mean number of days between date of specimen collection and date of test result for PCR tests, by public sector laboratory, 23 May – 12 June 2021. The horizontal black line indicates 48-hour turnaround time (TAT).

Testing by province

Gauteng reported the largest number of tests (45.3%), followed by Western Cape (15.3%) and KwaZulu-Natal (12.9%) provinces in week 23 of 2021 (Table 3). The overall testing rate increased from 429 per 100,000 persons in week 22 to 506 per 100,000 in week 23. The testing rate ranged from 882 per 100,000 persons in Gauteng to 114 per 100,000 persons in Limpopo (Figure 6). Testing rates decreased in the Northern Cape (842 per 100,000 persons in week 22 to 668 per 100,000 in week 23). Testing rates increased in the Western Cape and Gauteng and were similar to the previous week in all other provinces.

The percentage testing positive in week 23 was highest in Gauteng (24.4%), North West (21.7%), Northern Cape (20.8%), Free State (18.2%), Limpopo (16.9%), Mpumalanga (16.1%) and Western Cape (11.3%) provinces. The percentage testing positive was less than 10% in the Eastern Cape and KwaZulu-Natal (Figure 7 and Table 3). Compared to the previous week, the percentage testing positive in week 23 increased in the Western Cape (P<0.001), Eastern Cape (P<0.001), KwaZulu-Natal (P<0.001), Gauteng (P<0.001), Free State (P=0.001), North West (P<0.001), Mpumalanga (P<0.001) and Limpopo (P<0.001) provinces. The percentage testing positive remained the same in the Northern Cape (P=0.492) province. The percentage testing positive was higher than the national average, not weighted for population size, in the Northern Cape, Free State, North West, and Gauteng provinces (Figure 7).

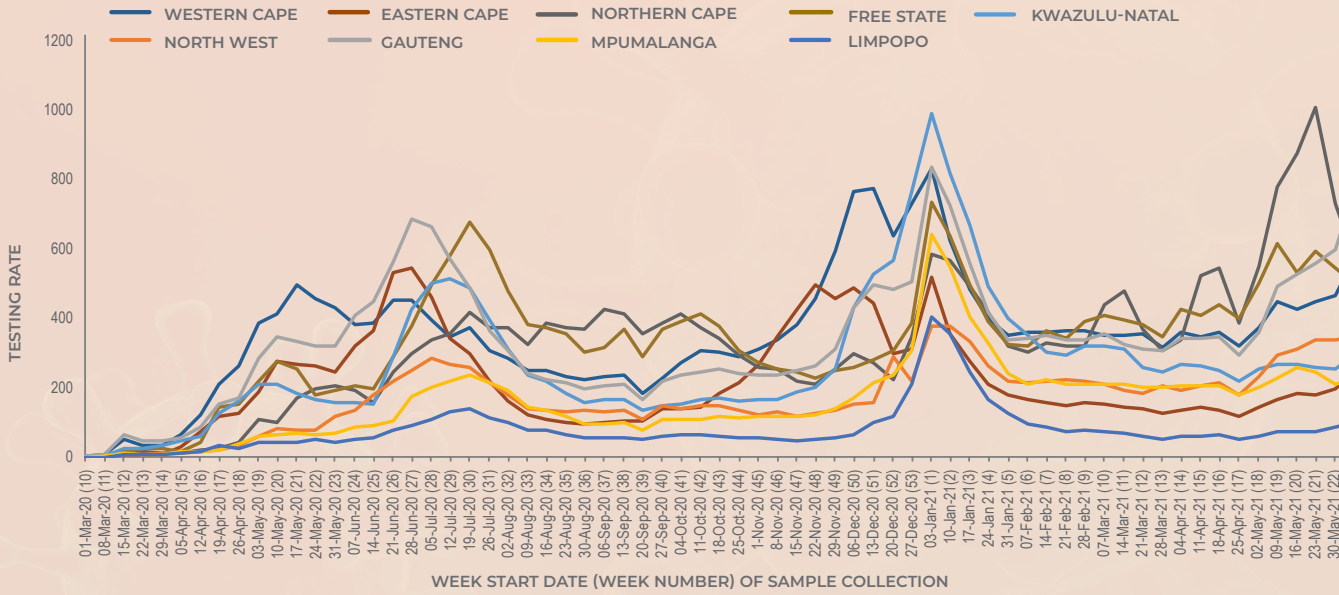

Figure 6. Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 1 March 2020 – 12 June 2021

Table 3. Weekly number of tests and positive tests reported, by province, South Africa, 23 May – 12 June 2021

		23-29 May 2021		30 May - 5 Jun 2021		6-12 Jun 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	36135	2305 (6.4)	37680	3024 (8.0)	46145	5194 (11.3)	659	3.2%
Eastern Cape	6734001	14007	676 (4.8)	15204	939 (6.2)	19071	1404 (7.4)	283	1.2%
Northern Cape	1292786	14988	3292 (22.0)	10882	2221 (20.4)	8640	1798 (20.8)	668	0.4%
Free State	2928903	19992	3636 (18.2)	18389	3098 (16.8)	16831	3065 (18.2)	575	1.4%
KwaZulu-Natal	11531628	34556	1034 (3.0)	33716	1318 (3.9)	38789	2449 (6.3)	336	2.4%
North West	4108816	16049	2801 (17.5)	15892	2992 (18.8)	16493	3581 (21.7)	401	2.9%
Gauteng	15488137	99925	13765 (13.8)	106505	19365 (18.2)	136638	33381 (24.4)	882	6.2%
Mpumalanga	4679786	13214	1380 (10.4)	11396	1566 (13.7)	12195	1959 (16.1)	261	2.3%
Limpopo	5852553	4821	517 (10.7)	5840	836 (14.3)	6677	1130 (16.9)	114	2.6%
Unknown		258	29 (11.2)	351	76 (21.7)	339	53 (15.6)		
Total	**59622350**	**253945**	**29435 (11.6)**	**255855**	**35435 (13.8)**	**301818**	**54014 (17.9)**	**506**	**4.0%**

[a] 2020 Mid-year population Statistics SA

[b] Current week compared to previous week

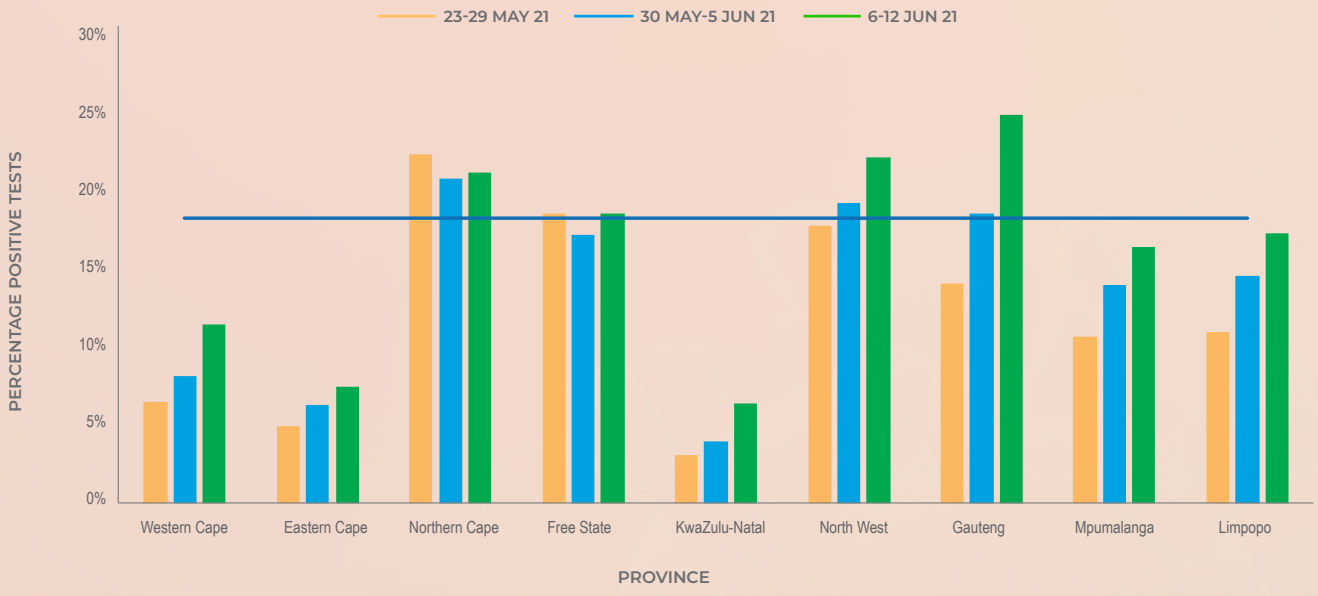

Figure 7. Weekly percentage testing positive, by province, South Africa, 23 May – 12 June 2021. The horizontal blue line shows the national mean for week 23, beginning 6 June 2021

Testing in the public sector

In the public sector, the percentage testing positive increased in the past week (11.5% in week 22 to 13.2% in week 23, P<0.001) (Table 4). The percentage testing positive in week 23 was highest in Gauteng (21.0%), Northern Cape (19.2%) and North West (18.4%) 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 Limpopo provinces (Figure 8).

Table 4. Weekly number of tests and positive tests reported in the public sector, by province, South Africa, 23 May – 12 June 2021

	23-29 May 2021		30 May - 5 Jun 2021		6-12 Jun 2021	
Province	**No. of tests**	**No. positive tests (%)**	**No. of tests**	**No. positive tests (%)**	**No. of tests**	**No. positive tests (%)**
Western Cape	13577	680 (5.0)	13095	873 (6.7)	16590	1545 (9.3)
Eastern Cape	8643	262 (3.0)	8837	395 (4.5)	11696	504 (4.3)
Northern Cape	10962	2254 (20.6)	7089	1360 (19.2)	5333	1025 (19.2)
Free State	11783	1854 (15.7)	9712	1375 (14.2)	8108	1161 (14.3)
KwaZulu-Natal	21347	465 (2.2)	19687	533 (2.7)	22386	829 (3.7)
North West	8223	1407 (17.1)	6795	1100 (16.2)	7188	1321 (18.4)
Gauteng	32338	4076 (12.6)	28956	5136 (17.7)	39683	8314 (21.0)
Mpumalanga	6512	471 (7.2)	4110	435 (10.6)	4414	512 (11.6)
Limpopo	1309	131 (10.0)	1686	242 (14.4)	1776	271 (15.3)
Unknown	0	0 (0.0)	0	0 (0.0)	1	0 (0.0)
Total	**114694**	**11600 (10.1)**	**99967**	**11449 (11.5)**	**117175**	**15482 (13.2)**

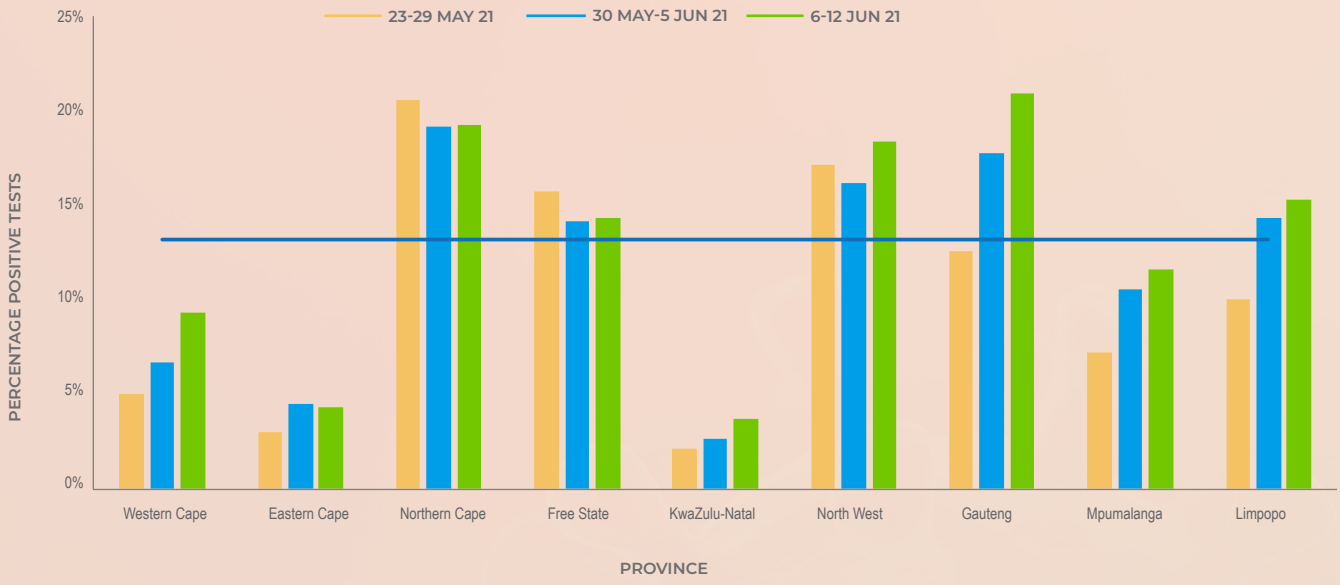

Figure 8. Weekly percentage testing positive in the public sector, by province, South Africa, 23 May – 12 June 2021. The horizontal blue line shows the national mean for week 23 of 2021, beginning 6 June 2021.

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 6-12 June 2021. Eighteen of the 25 public facilities showing the highest PTP are in Gauteng, with two in the Northern Cape.

Table 5.1 Public sector healthcare facilities with a high proportion testing positive, 6-12 June 2021

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Gauteng	57	0.772 (0.663;0.881)
Facility 2	Gauteng	25	0.760 (0.593;0.927)
Facility 3	Gauteng	99	0.576 (0.478;0.673)
Facility 4	Gauteng	54	0.556 (0.423;0.688)
Facility 5	Gauteng	29	0.517 (0.335;0.699)
Facility 6	Gauteng	33	0.515 (0.345;0.686)
Facility 7	Gauteng	262	0.492 (0.432;0.553)
Facility 8	North West	65	0.492 (0.371;0.614)
Facility 9	Free State	31	0.484 (0.308;0.660)
Facility 10	Gauteng	31	0.484 (0.308;0.660)
Facility 11	Western Cape	48	0.479 (0.338;0.620)
Facility 12	Gauteng	44	0.477 (0.330;0.625)
Facility 13	Gauteng	40	0.475 (0.320;0.630)
Facility 14	Eastern Cape	38	0.474 (0.315;0.632)
Facility 15	Gauteng	38	0.474 (0.315;0.632)
Facility 16	Gauteng	72	0.472 (0.357;0.588)
Facility 17	Gauteng	39	0.462 (0.305;0.618)
Facility 18	Gauteng	53	0.453 (0.319;0.587)
Facility 19	Gauteng	31	0.452 (0.276;0.627)
Facility 20	Gauteng	81	0.444 (0.336;0.553)
Facility 21	Northern Cape	39	0.436 (0.280;0.592)
Facility 22	Gauteng	93	0.430 (0.329;0.531)
Facility 23	Gauteng	136	0.426 (0.343;0.510)
Facility 24	Limpopo	26	0.423 (0.233;0.613)
Facility 25	Northern Cape	38	0.421 (0.264;0.578)

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 6 – 12 June 2021, with the highest proportion testing positive nationally. The private-sector facilities with the 25 highest proportions testing positive are concentrated almost exclusively in Gauteng (24).

Table 5.2 Private sector healthcare facilities with a high proportion testing positive, 6-12 June 2021

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Gauteng	27	0.630 (0.447;0.812)
Facility 2	Gauteng	34	0.618 (0.454;0.781)
Facility 3	Gauteng	44	0.545 (0.398;0.693)
Facility 4	Gauteng	239	0.540 (0.477;0.603)
Facility 5	Northern Cape	31	0.516 (0.340;0.692)
Facility 6	Gauteng	76	0.513 (0.401;0.626)
Facility 7	Gauteng	30	0.500 (0.321;0.679)
Facility 8	Gauteng	56	0.500 (0.369;0.631)
Facility 9	Gauteng	59	0.492 (0.364;0.619)
Facility 10	Gauteng	47	0.489 (0.346;0.632)
Facility 11	Gauteng	125	0.480 (0.392;0.568)
Facility 12	Gauteng	169	0.473 (0.398;0.549)
Facility 13	Gauteng	227	0.471 (0.406;0.536)
Facility 14	Gauteng	51	0.471 (0.334;0.608)
Facility 15	Gauteng	498	0.454 (0.410;0.498)
Facility 16	Gauteng	213	0.451 (0.384;0.518)
Facility 17	Gauteng	786	0.450 (0.416;0.485)
Facility 18	Gauteng	80	0.450 (0.341;0.559)
Facility 19	Gauteng	69	0.449 (0.332;0.567)
Facility 20	Gauteng	29	0.448 (0.267;0.629)
Facility 21	Gauteng	375	0.448 (0.398;0.498)
Facility 22	Gauteng	43	0.442 (0.293;0.590)
Facility 23	Gauteng	397	0.441 (0.392;0.490)
Facility 24	Gauteng	100	0.440 (0.343;0.537)
Facility 25	Gauteng	48	0.438 (0.297;0.578)

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 83% of private testing facilities) in the week from 6-12 June 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. Twelve of the 25 districts are in Gauteng, with four in the Northern Cape and three in Limpopo.

Ten districts (four in Gauteng, two in Limpopo, and one each in North West, Mpumalanga, Free State and the Northern Cape) showed a PTP in the current week in excess of 30%, compared to five in the preceding week. PTP exceeded 20% in all 25 districts (25 in the previous week), as well as in a further 34 districts. Significant increases were observed in 12 of these 25 districts (ten in Gauteng, and two in Limpopo).

Table 6. Health sub-districts with the highest proportion testing positive based on public and private sector data for the week of 6-12 June 2021

Health district or sub-district	Province	PTP (95% CI)	Previous week
Greater Taung	North West	0.473 (0.352-0.595)	0.479 (0.353-0.605)
Johannesburg G	Gauteng	0.395 (0.377-0.414)	0.284 (0.265-0.302)
Randfontein	Gauteng	0.392 (0.366-0.418)	0.291 (0.266-0.316)
Lekwa	Mpumalanga	0.345 (0.296-0.394)	0.277 (0.230-0.324)
Letsemeng	Free State	0.336 (0.255-0.417)	0.211 (0.160-0.261)
Mogale City	Gauteng	0.335 (0.321-0.350)	0.208 (0.194-0.222)
Thabazimbi	Limpopo	0.322 (0.288-0.356)	0.247 (0.217-0.277)
Elias Motsoaledi	Limpopo	0.322 (0.246-0.397)	0.165 (0.103-0.227)
Westonaria	Gauteng	0.304 (0.227-0.381)	0.297 (0.197-0.398)
Ga-Segonyana	Northern Cape	0.302 (0.241-0.364)	0.247 (0.205-0.290)
Tshwane 6	Gauteng	0.294 (0.283-0.306)	0.211 (0.200-0.222)
Merafong City	Gauteng	0.289 (0.262-0.317)	0.192 (0.165-0.220)
Tshwane 4	Gauteng	0.289 (0.275-0.302)	0.218 (0.204-0.232)
Magareng	Northern Cape	0.289 (0.220-0.357)	0.221 (0.185-0.257)
Tshwane 2	Gauteng	0.286 (0.269-0.303)	0.187 (0.171-0.204)
Makhuduthamaga	Limpopo	0.281 (0.150-0.413)	0.126 (0.038-0.214)
Emfuleni	Gauteng	0.280 (0.269-0.292)	0.220 (0.210-0.231)
Johannesburg C	Gauteng	0.280 (0.270-0.289)	0.189 (0.180-0.198)
Dipaleseng	Mpumalanga	0.270 (0.159-0.381)	0.315 (0.205-0.426)
Tshwane 3	Gauteng	0.265 (0.257-0.274)	0.203 (0.194-0.211)
Ratlou	North West	0.264 (0.180-0.349)	0.133 (0.084-0.182)
Dikgatlong	Northern Cape	0.264 (0.176-0.352)	0.288 (0.183-0.394)
Tshwane 7	Gauteng	0.263 (0.214-0.311)	0.295 (0.240-0.350)
Ngwathe	Free State	0.260 (0.189-0.331)	0.172 (0.121-0.222)
Sol Plaatjie	Northern Cape	0.258 (0.243-0.274)	0.251 (0.237-0.266)

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.

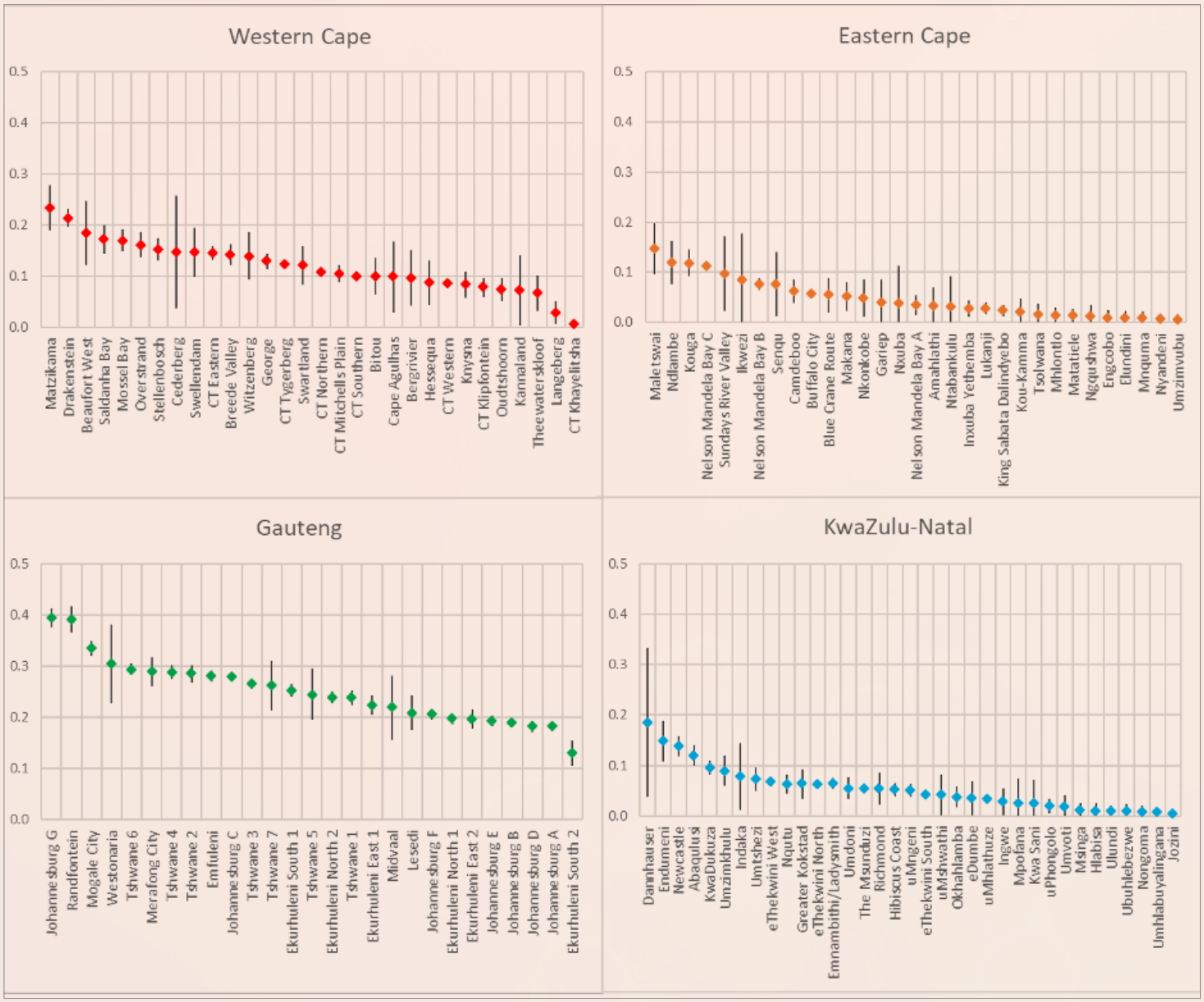

Figure 9.1 Proportions testing positive by health sub-district in the Western Cape, Eastern Cape, Gauteng and KwaZulu-Natal provinces based on public and private sector data for the week of 6-12 June 2021.

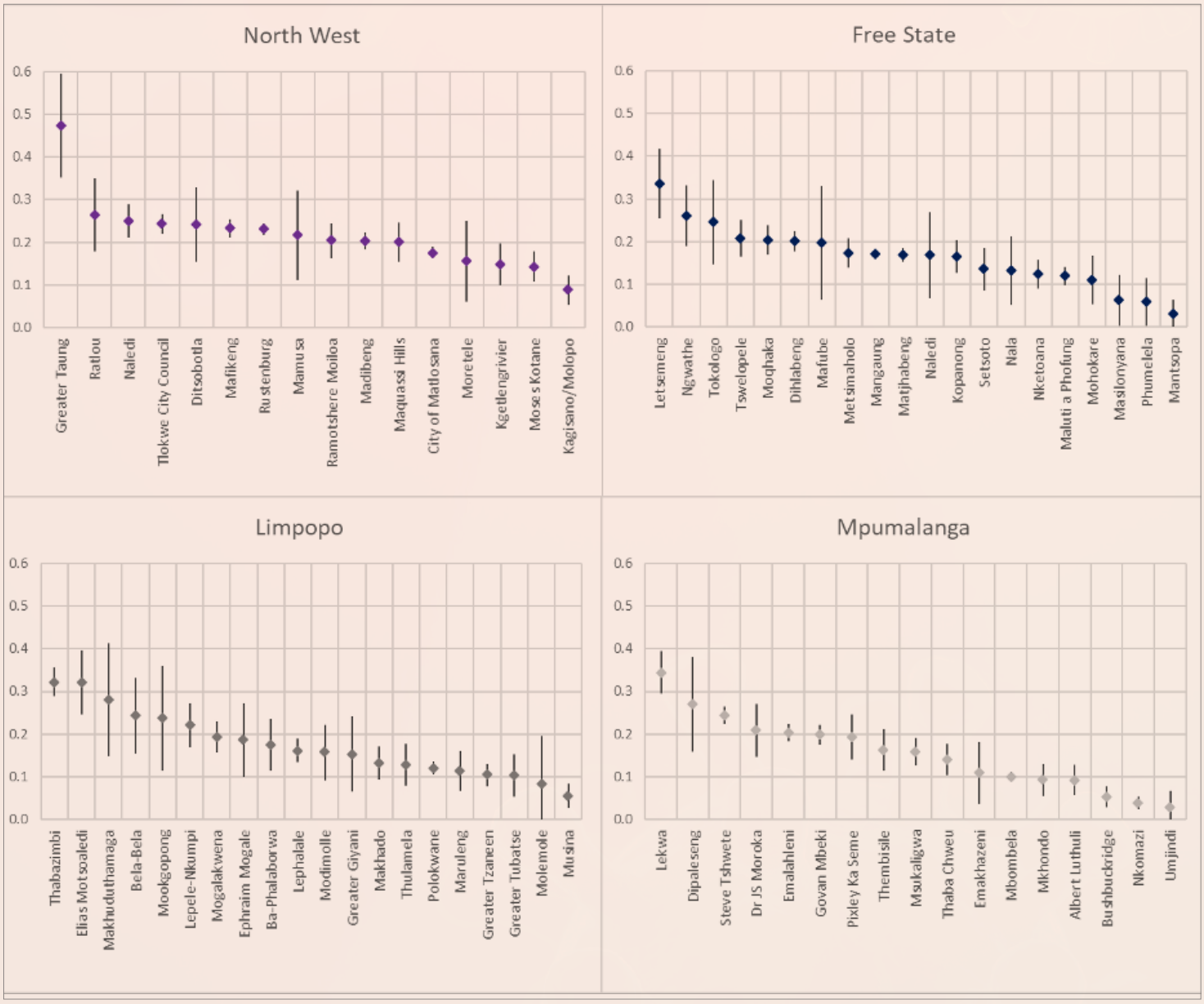

Figure 9.2 Proportions testing positive by health sub-district in the North West, Free State, Limpopo and Mpumalanga provinces based on public and private sector data for the week of 6-12 June 2021.

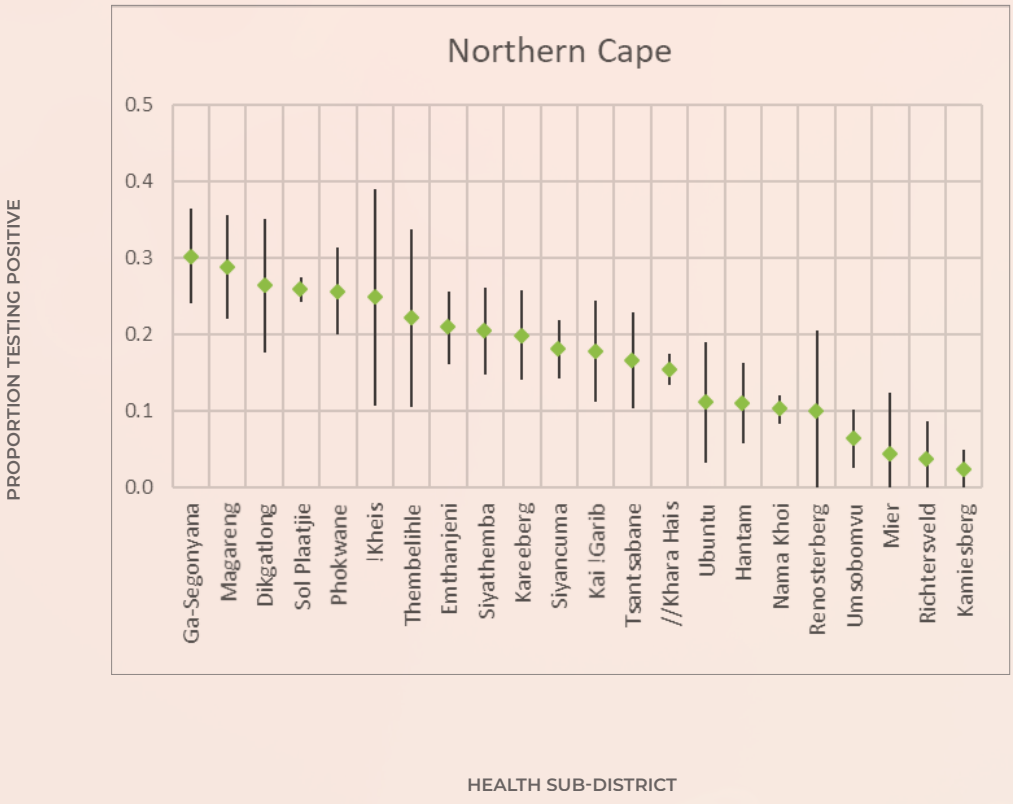

Figure 9.3 Proportions testing positive by health sub-districts in the Northern Cape Province based on public and private sector data for the week of 6-12 June 2021.

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).

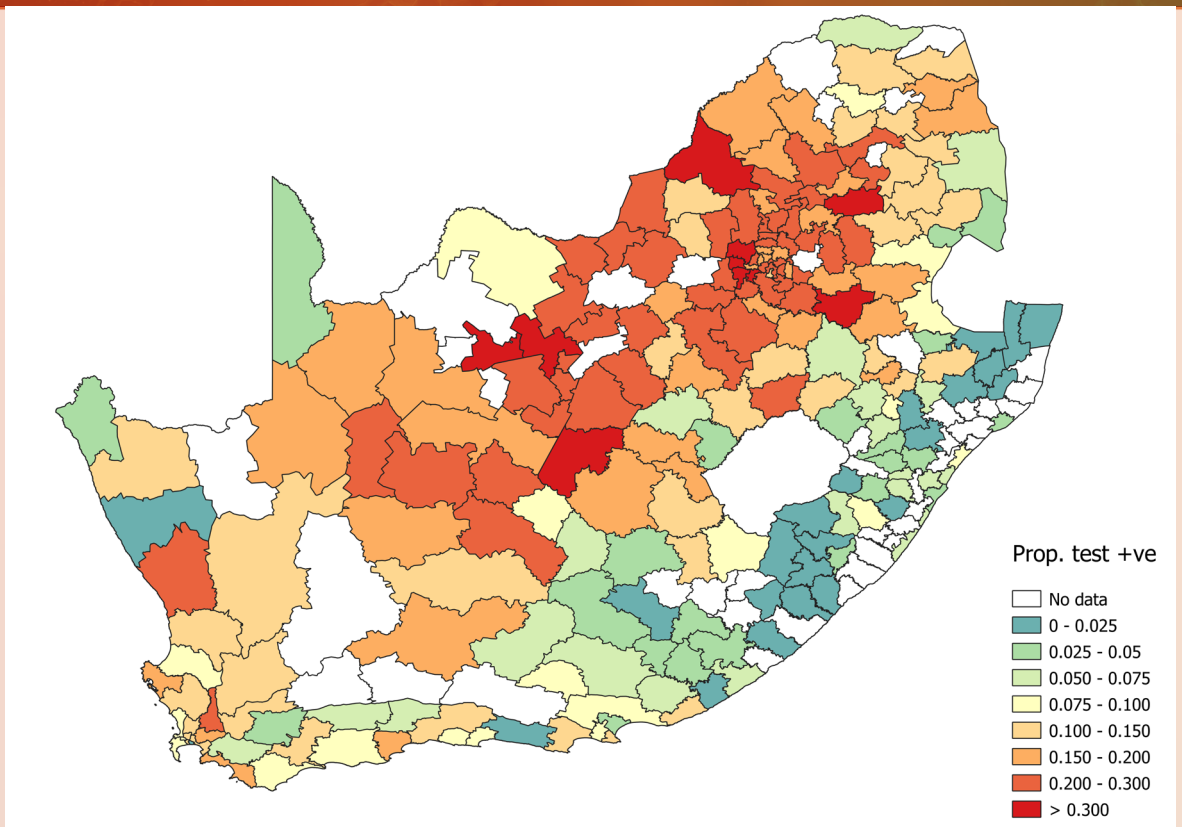

Figure 10. Proportion testing positive by health sub-district in South Africa for the week of 6-12 June 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

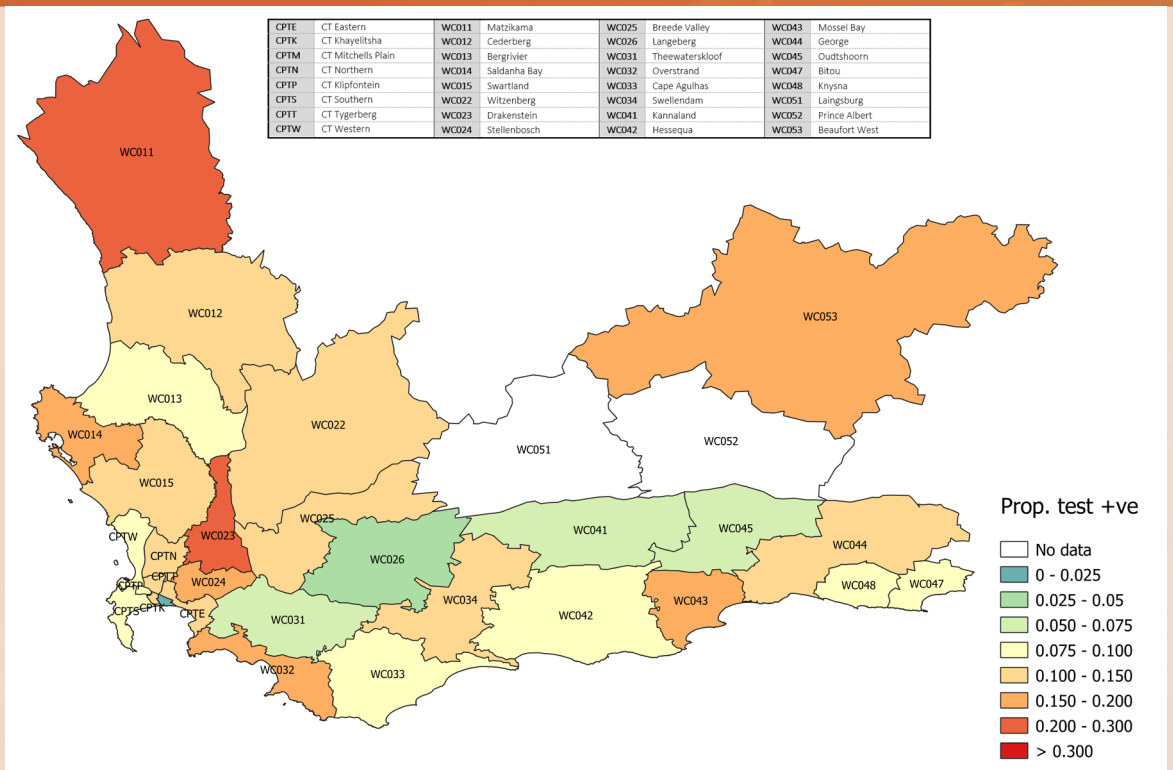

Figure 11. Proportion testing positive by health sub-district in the Western Cape Province for the week of 6-12 June 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%

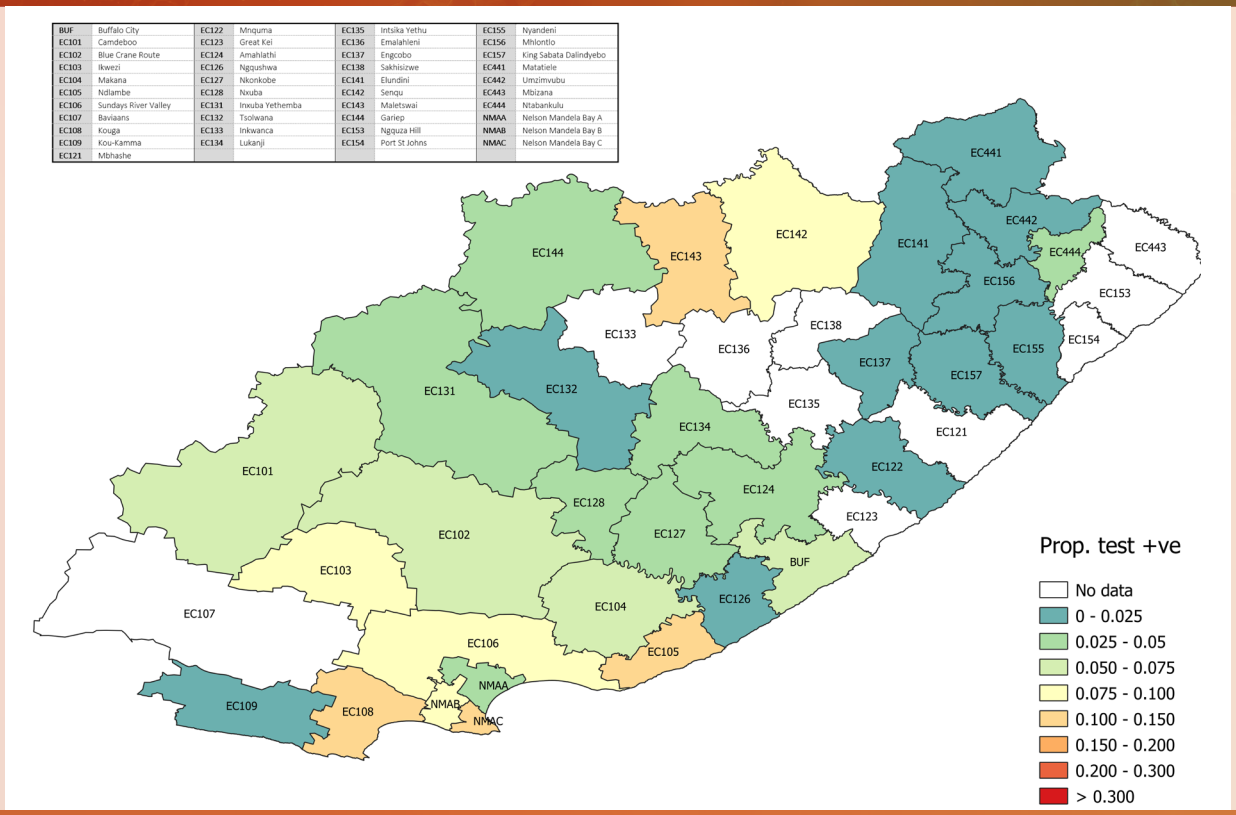

Figure 12. Proportion testing positive by health sub-district in the Eastern Cape Province for the week of 6-12 June 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

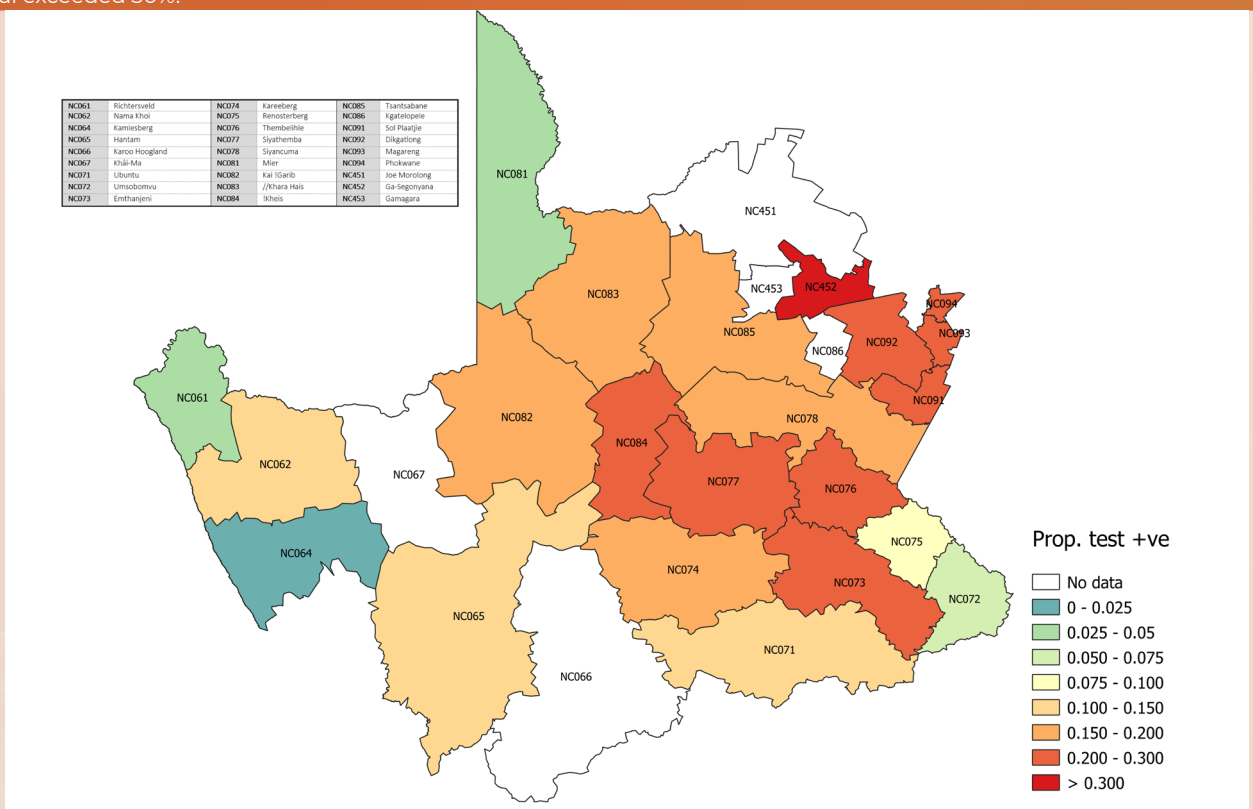

Figure 13. Proportion testing positive by health sub-district in Northern Cape Province for the week of 6-12 June 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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

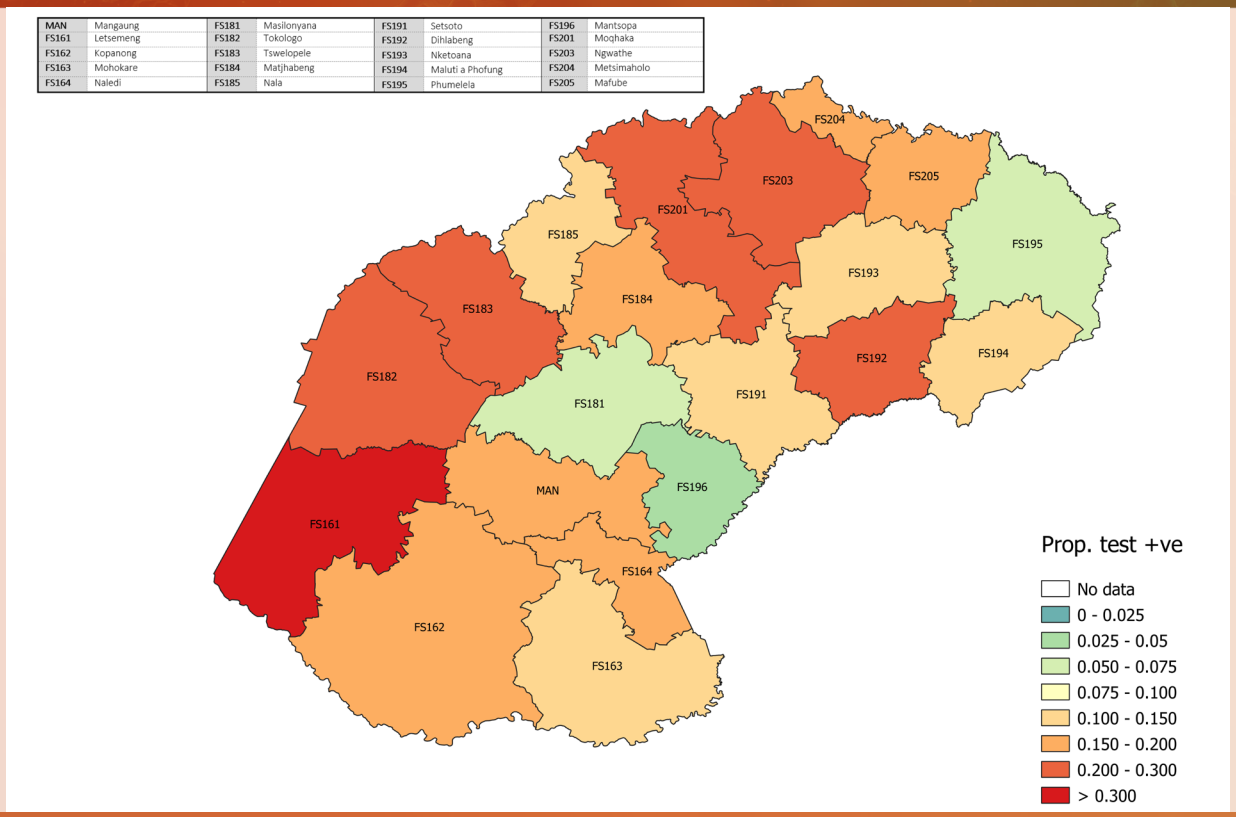

Figure 14. Proportion testing positive by health sub-district in Free State Province for the week of 6-12 June 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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

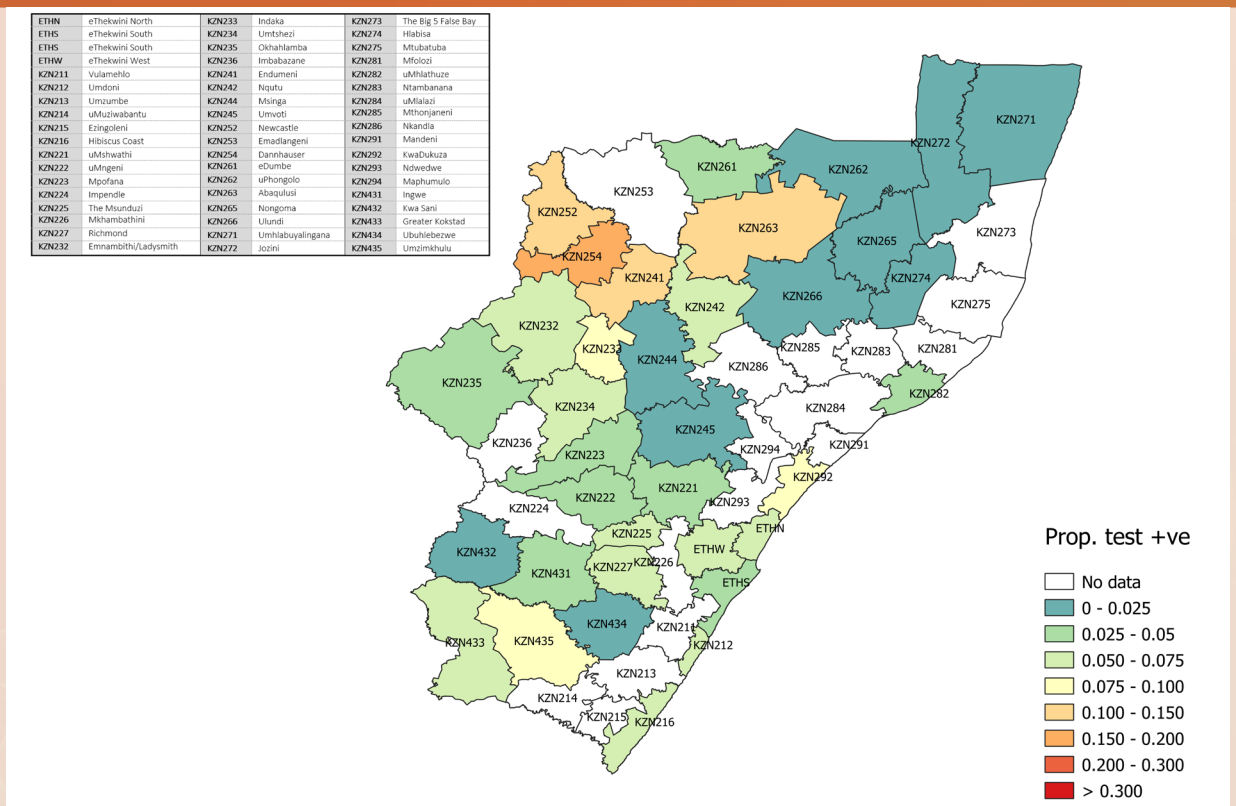

Figure 15. Proportion testing positive by health sub-district in KwaZulu-Natal Province for the week of 6-12 June 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

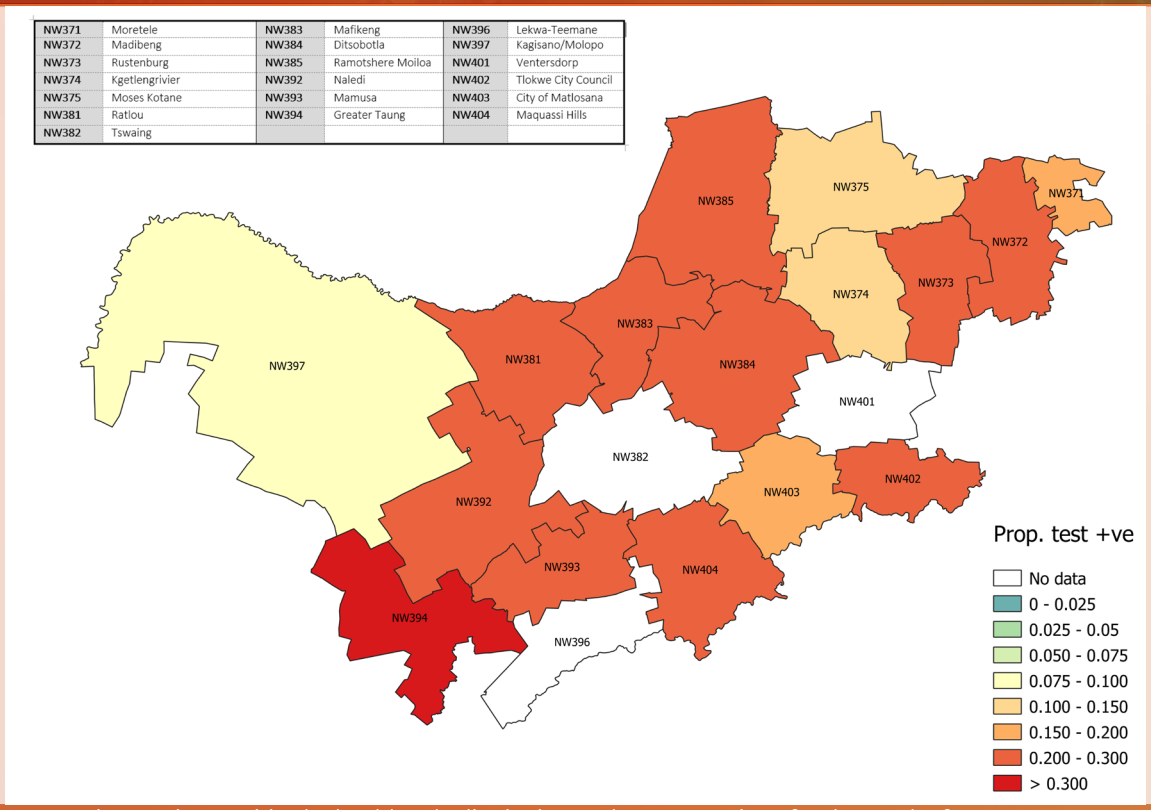

Figure 16. Proportion testing positive by health sub-district in North West Province for the week of 6-12 June 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

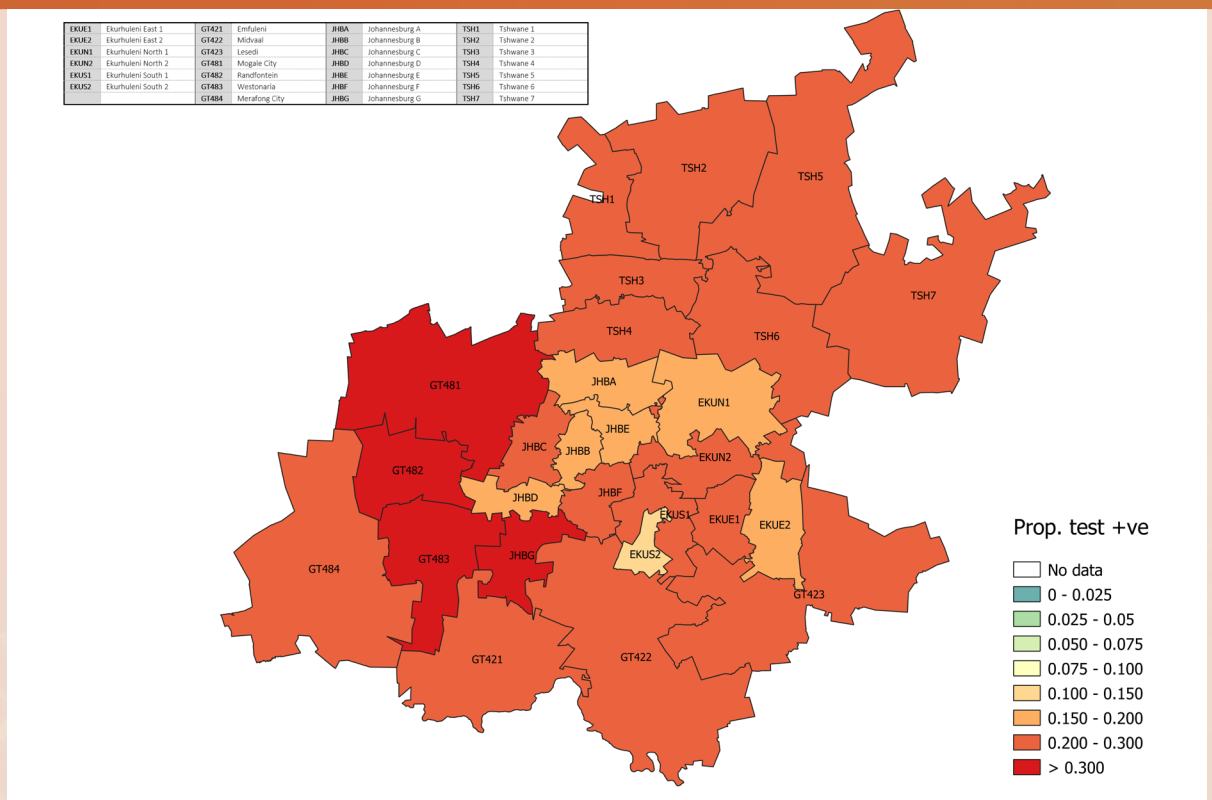

Figure 17. Proportion testing positive by health sub-district in Gauteng Province for the week of 6-12 June 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

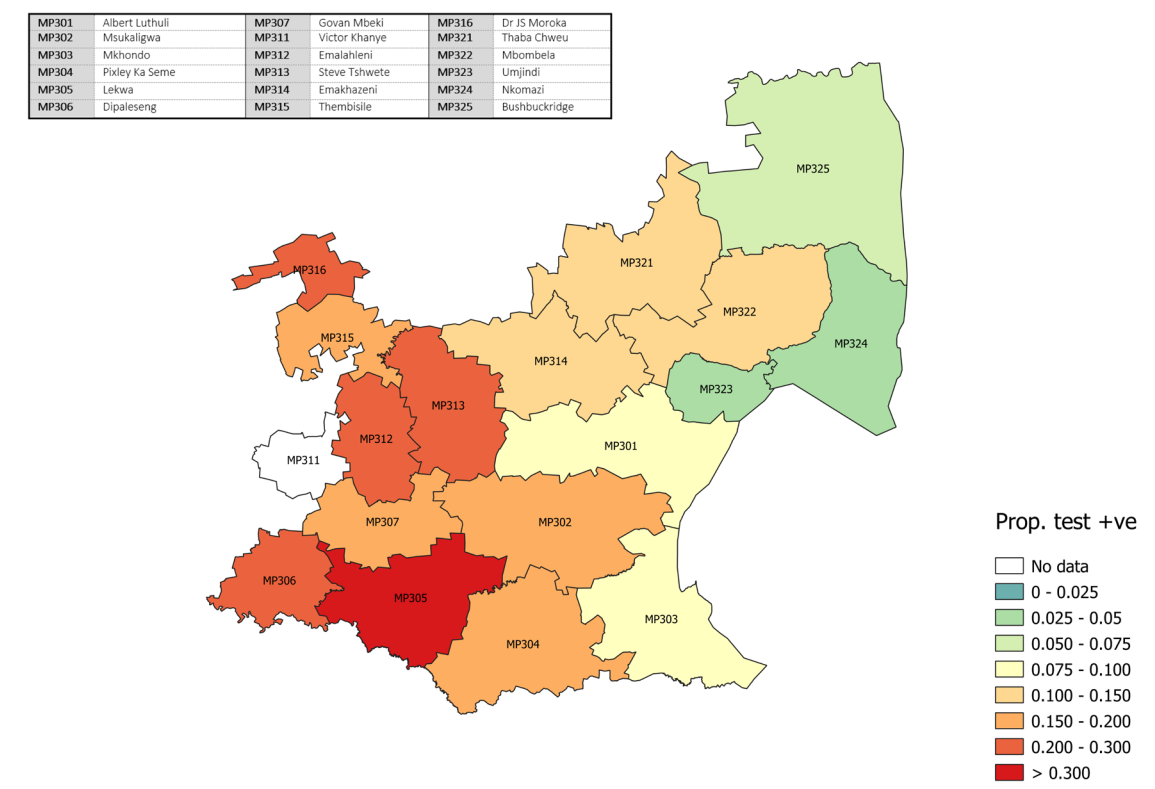

Figure 18. Proportion testing positive by health sub-district in Mpumalanga Province for the week of 6-12 June 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

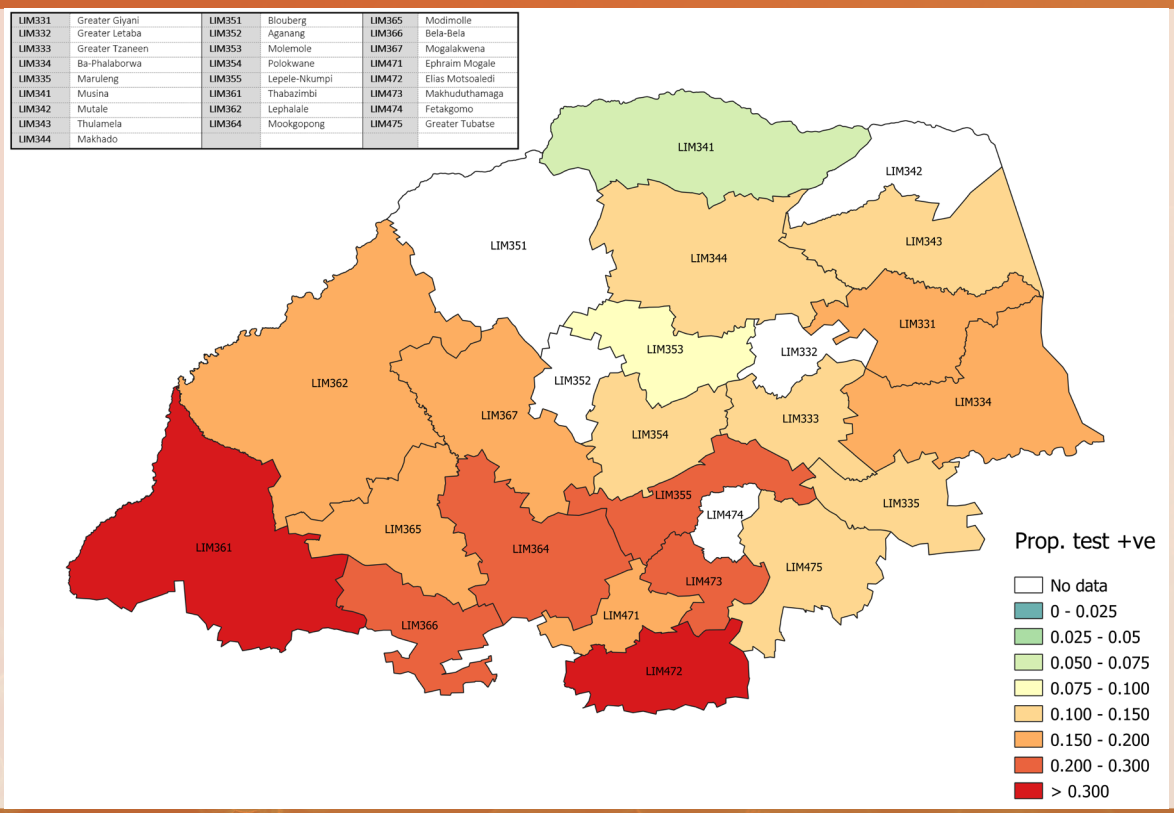

Figure 19. Proportion testing positive by health sub-district in Limpopo Province for the week of 6-12 June 2021. Areas shaded white represent districts in which either (i) no tests were reported, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

Testing by patient admission status

In week 23 of 2021, 34.5% of reported tests were for hospitalised patients; 42.8% in the public sector and 28.6% in the private sector (Figure 20). The percentage testing positive in week 23 was higher among outpatients (19.5%) compared to inpatients (13.6%), with increases observed in both groups (Figure 21). In week 23 the mean laboratory turnaround time for PCR tests in the public sector was higher amongst outpatients (2.4 days) than inpatients (1.4 days) (Figure 22).

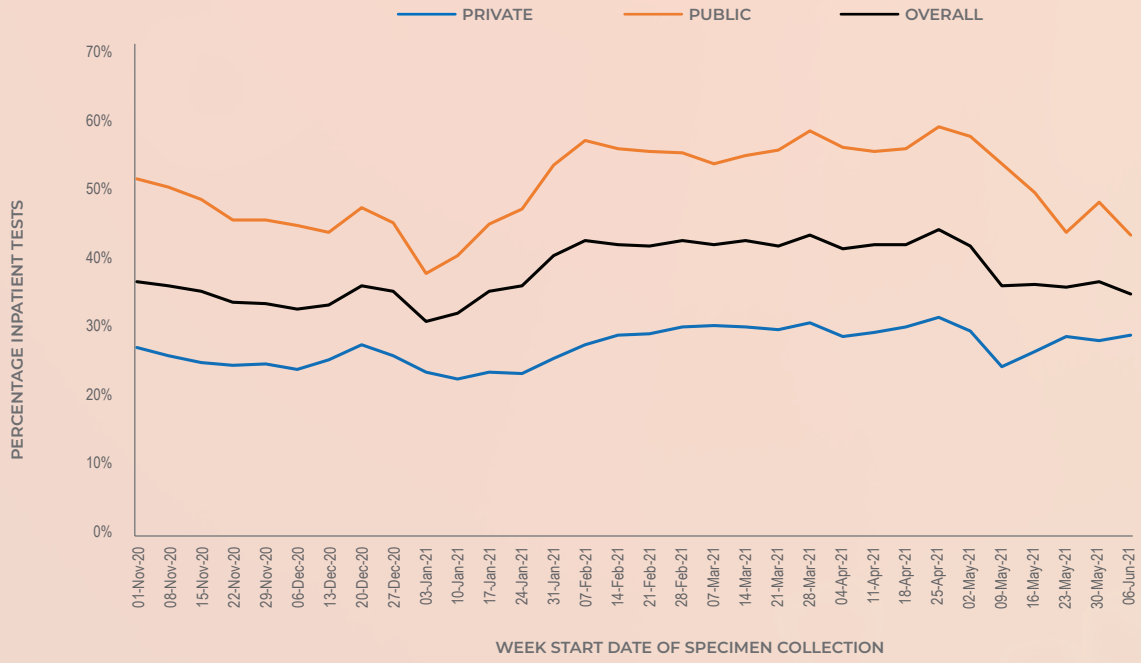

Figure 20. Percentage of inpatient tests reported by health sector, 1 November 2020 – 12 June 2021

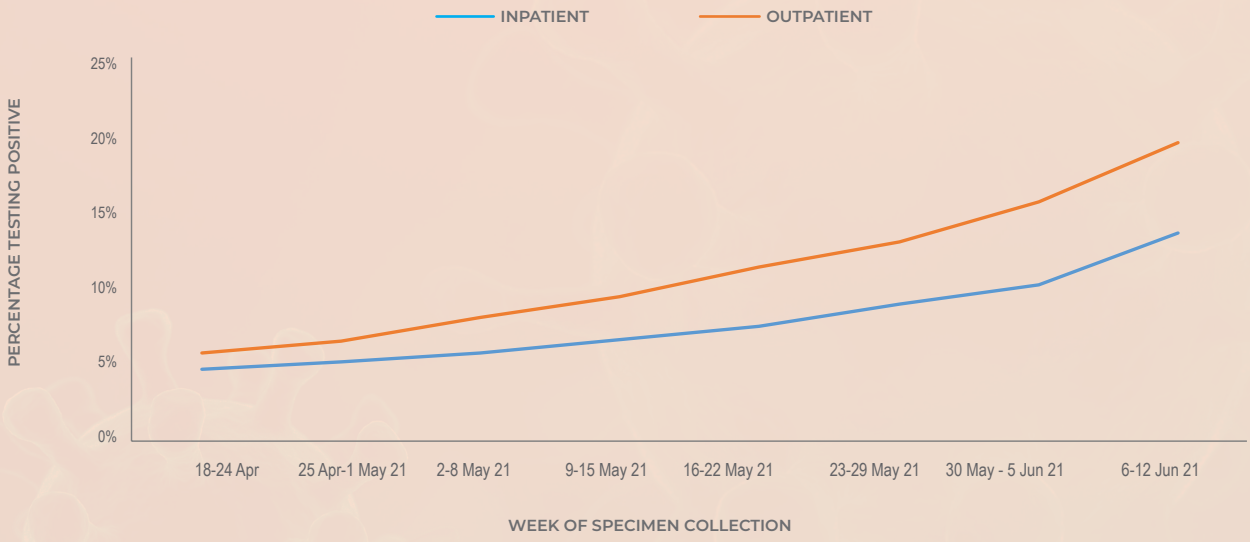

Figure 21. Percentage testing positive by patient admission status, 18 April – 12 June 2021

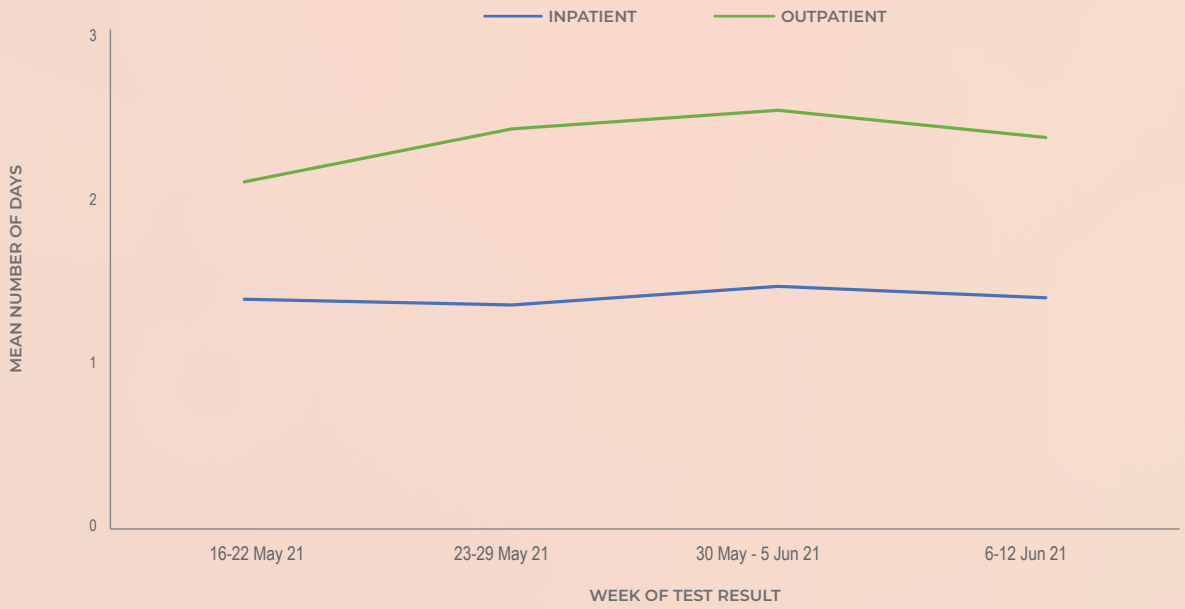

Figure 22. Mean number of days between date of specimen collection and date of test result for PCR tests in the public sector by patient admission status, 16 May – 12 June 2021

Testing by age and sex

The mean age of individuals tested in week 23 of 2021 was 38.3 years, and was the same for males (38.3 years) and females (38.3 years). The majority of reported tests (57.2%) were in individuals in the 20-49 years' age group although the distribution of tests was slightly skewed towards younger age groups in females compared to males (Figure 23). In week 23, the testing rate was higher in females (515 per 100,000 persons) than in males (478 per 100,000 persons) (Figure 24). Testing rates in week 23 were highest in the 80+ age group (952 per 100,000 persons). The percentage testing positive was highest in individuals aged 55-59 (21.7%) and 75-79 years (21.6%). Among younger individuals a high percentage testing positive was observed in the 10-14-year age group (19.6%). In males, the percentage testing positive was highest in individuals aged 70-74 years (21.8%). In females, the highest percentage testing positive was observed in individuals aged 75-79 years (23.0%).

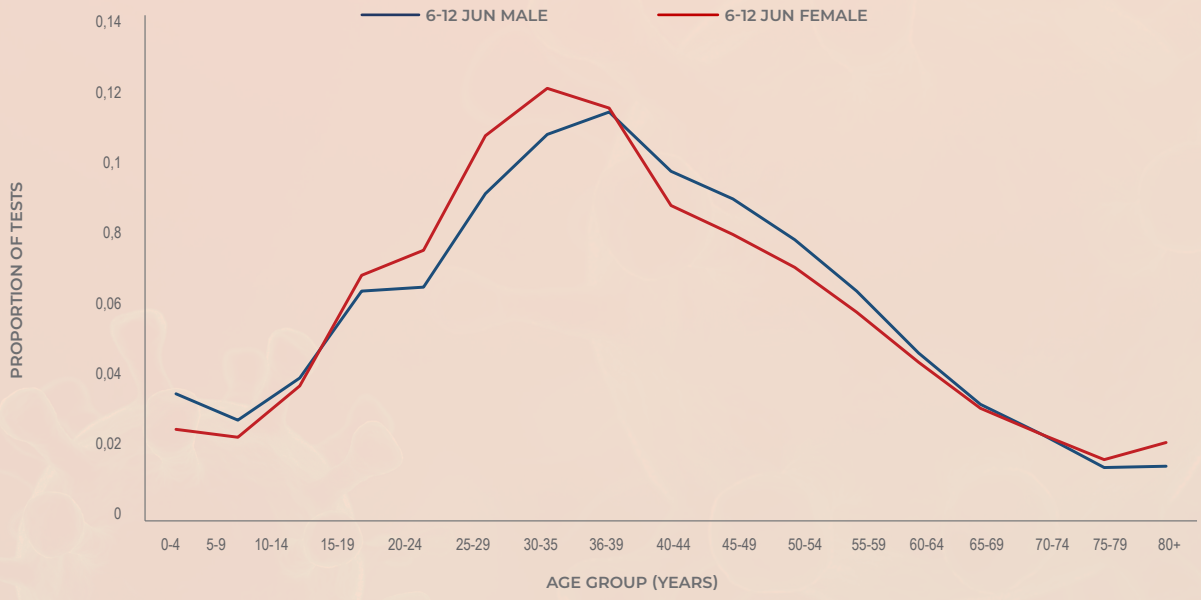

Figure 23. Proportion of tests by age group and sex, South Africa, week 23, 6-12 June 2021

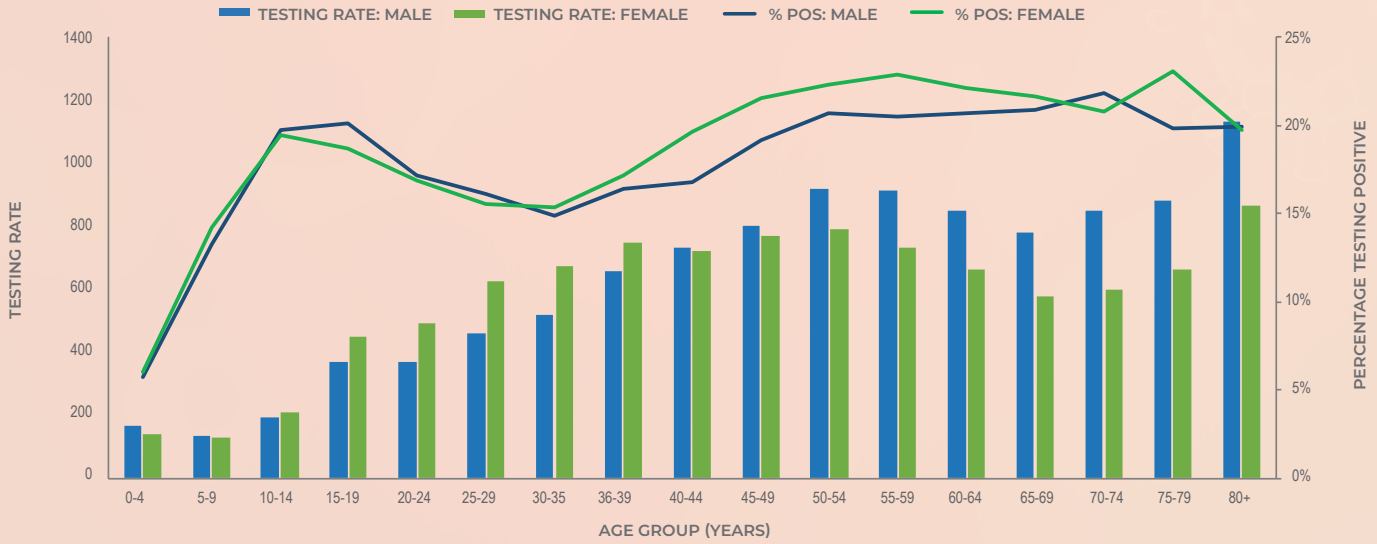

Figure 24. Testing rates per 100,000 persons and percentage testing positive by age group and sex, South Africa, week 23, 6-12 June 2021

Testing by test type

Up to the end of week 23 of 2021, 9.1% (1,101,176 / 12,139,885) of all reported tests were antigen tests. In week 23, 18.2% (54,988 / 301,818) of reported tests were antigen tests (Figure 25). Overall, 79.6% of antigen tests have been performed in the public sector and in week 23 the public sector accounted for 82.7% (45,492 / 54,988) of antigen tests. Since antigen testing began in November 2020, the majority of antigen tests have been reported from KwaZulu-Natal (39.7%), Gauteng (14.9%) and Eastern Cape (11.9%) provinces. In the past few weeks, KwaZulu-Natal and Gauteng have performed the highest weekly number of antigen tests. The percentage testing positive was higher for PCR tests compared to antigen tests, and in week 23 it was 19.6% for PCR tests and 10.1% for antigen tests (Figure 26). The mean turnaround time for antigen tests reported in week 23 increased to 5.0 days in the public sector and remained at 0.1 days in the private sector (Figure 27). The number of antigen tests reported is likely underestimated as antigen tests are increasingly being used outside of laboratory settings and results may not be reported.

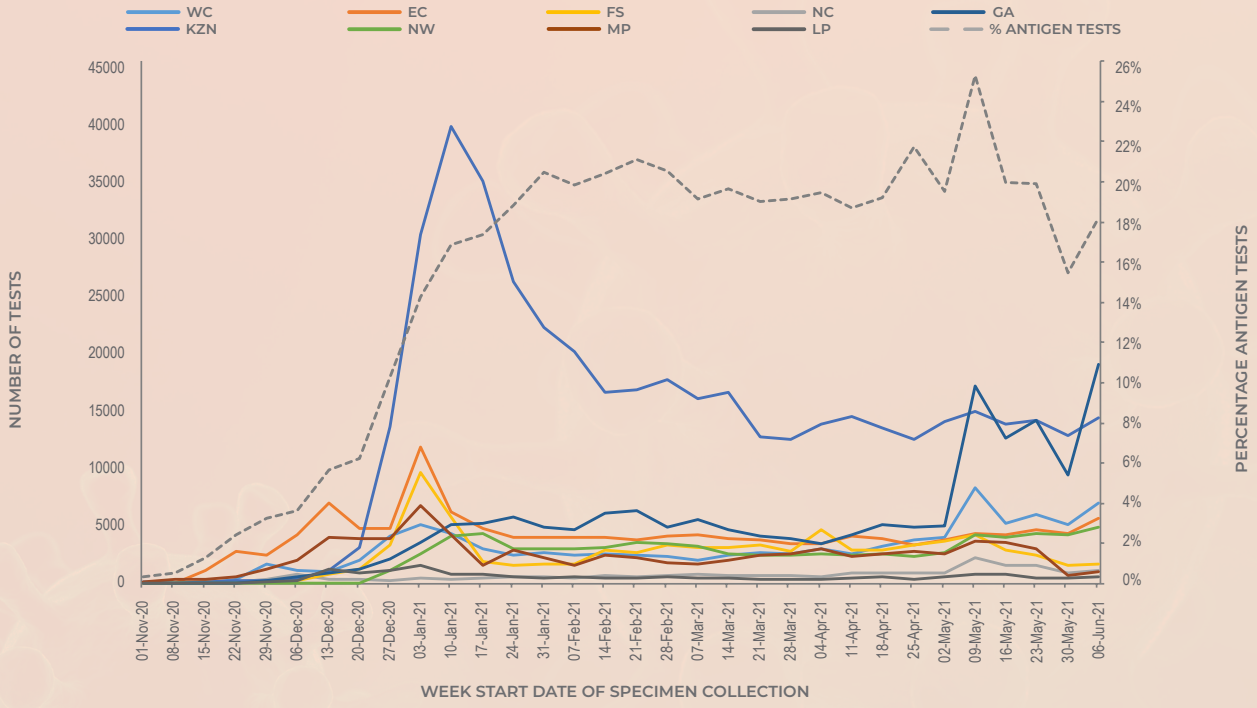

Figure 25. Number of antigen tests by province, and overall percentage antigen tests, South Africa, 1 November 2020 – 12 June 2021. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal; GT, Gauteng; NC, Northern Cape; NW, North West; MP, Mpumalanga; LP, Limpopo

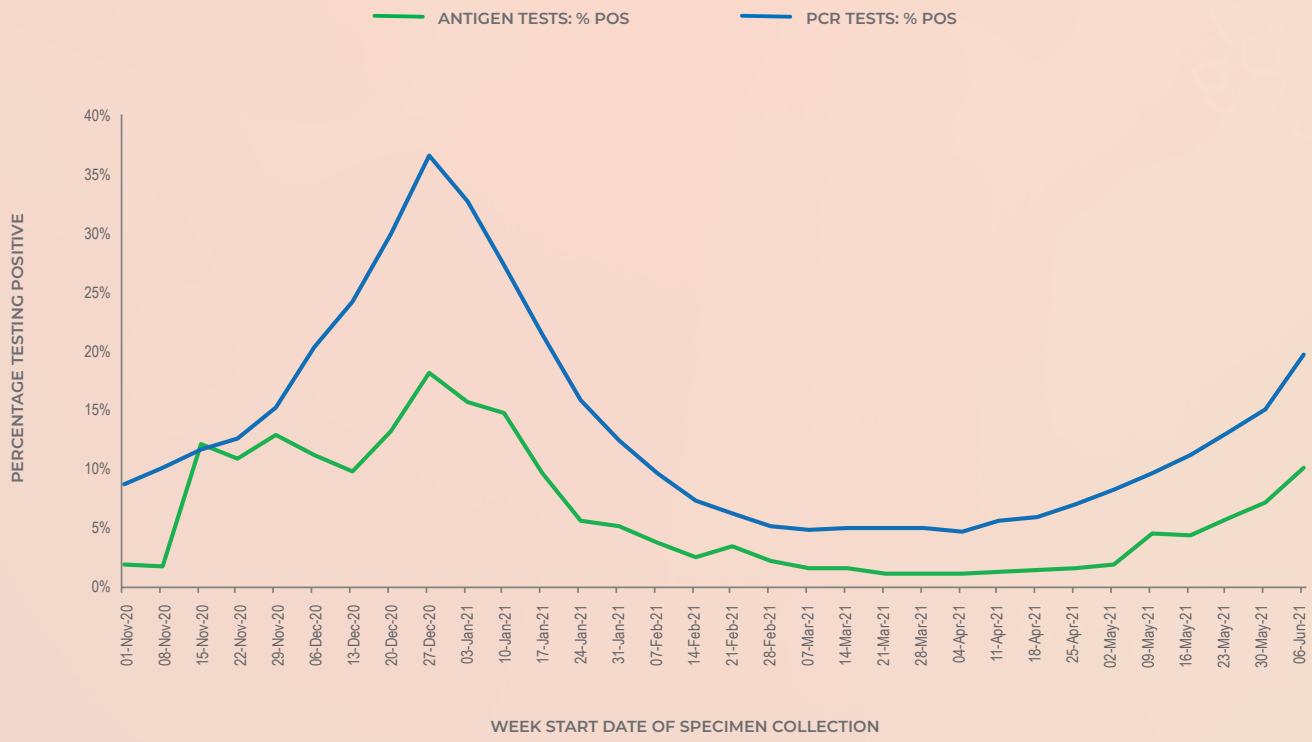

Figure 26. Percentage of laboratory tests positive for SARS-CoV-2 by test type and date of specimen collection, South Africa, 1 November 2020 – 12 June 2021

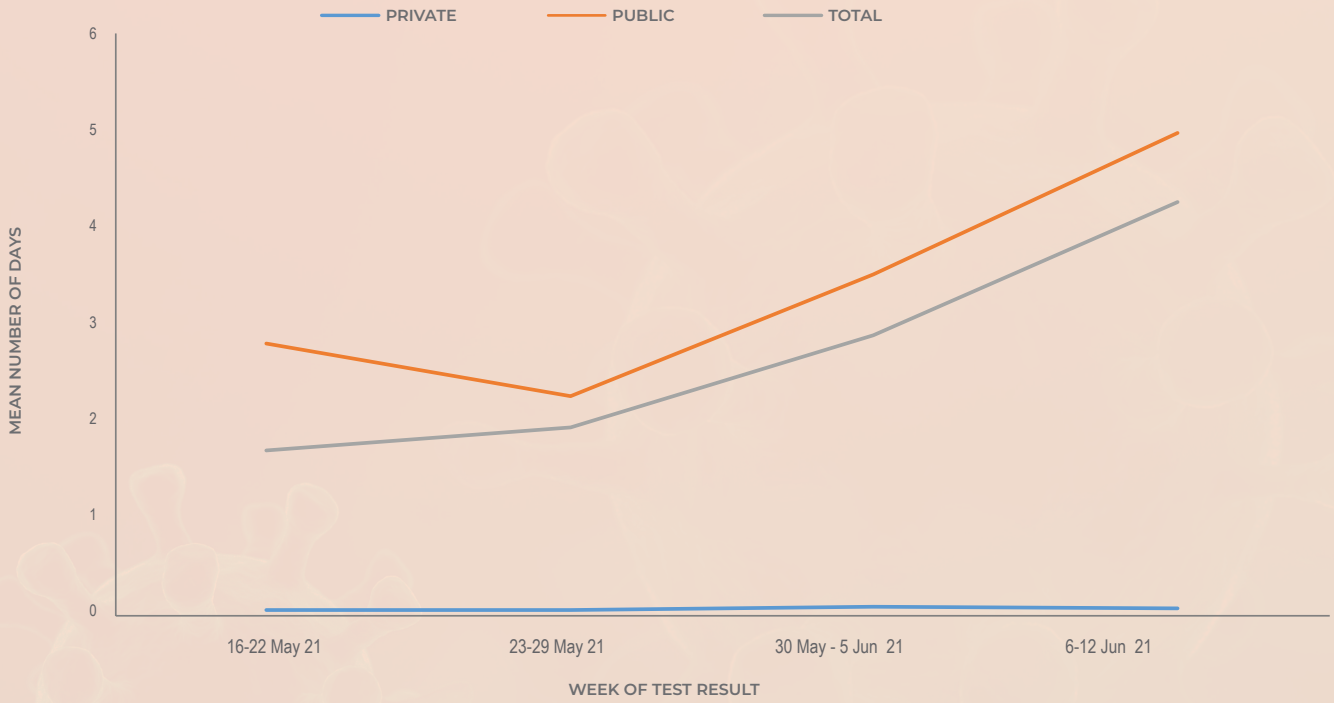

Figure 27. Mean number of days between date of specimen collection and date of test result for antigen tests, by week of test result, South Africa, 16 May- 12 June 2021

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 23 (n=301,818) was higher than the previous week. Gauteng (45.3%), Western Cape (15.3%) and KwaZulu-Natal (12.9%) provinces reported the largest number of tests in week 23. The overall testing rate in week 23 was 506 per 100,000 persons; highest in Gauteng (882 per 100,000 persons) and lowest in Limpopo (114 per 100,000 persons). Testing rates decreased in the Northern Cape and increased in the Western Cape and Gauteng provinces. Antigen tests accounted for 18.2% (54,988 / 301,818) of all tests reported in week 23, however the number of antigen tests is likely underestimated due to under-reporting and delayed reporting of antigen tests. The overall mean laboratory turnaround time for PCR tests was 1.0 day in week 23; 1.9 days in the public sector and 0.7 days in the private sector.

The percentage testing positive continues to increase and in week 23 of 2021, the percentage testing positive was 17.9%, which increased by 4.1% compared to the previous week. The percentage testing positive in week 23 was highest in Gauteng (24.4%), North West (21.7%), Northern Cape (20.8%), Free State (18.2%), Limpopo (16.9%), Mpumalanga (16.1%) and Western Cape (11.3%) provinces. The percentage testing positive was less than 10% in the Eastern Cape and KwaZulu-Natal. Compared to the previous week, the percentage testing positive in week 23 remained the same in the Northern Cape, but increased significantly in all other provinces.