COVID-19 TESTING SUMMARY

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

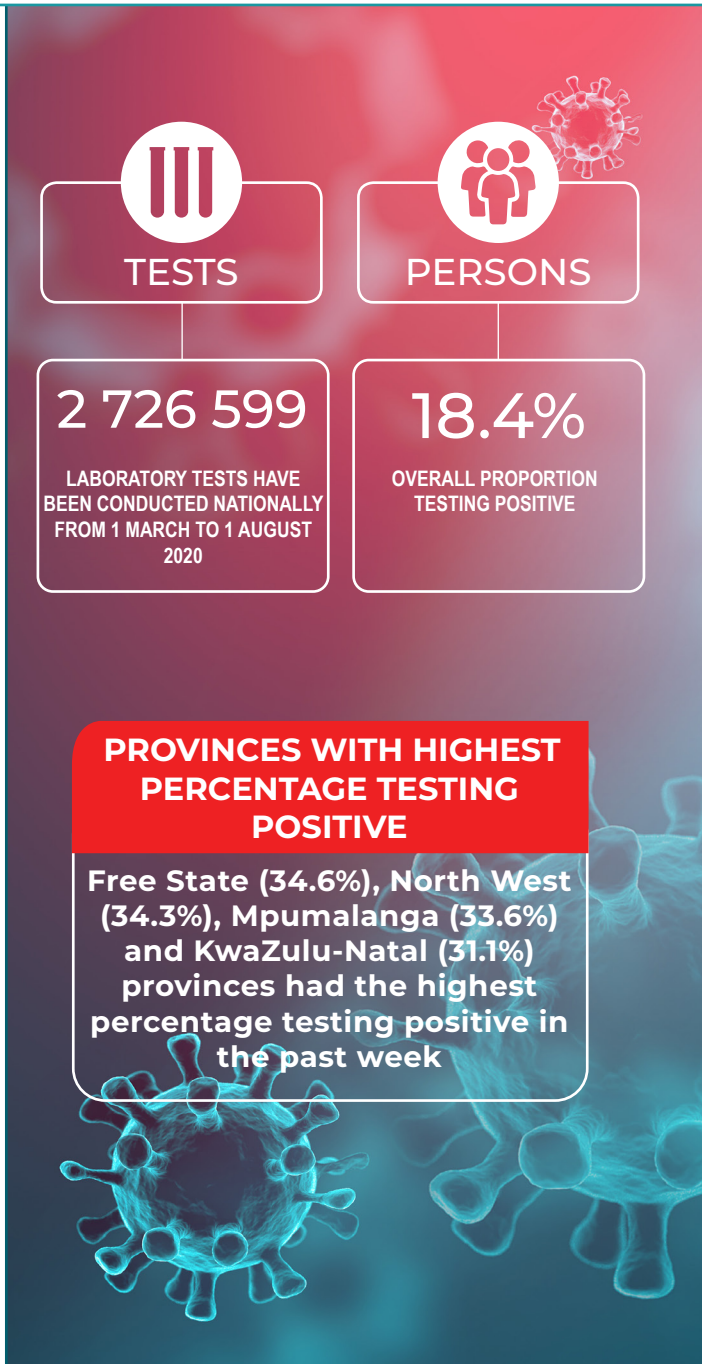
SOUTH AFRICA | WEEK 31 2020

OVERVIEW

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 collected up to 1 August 2020 (week 31 of 2020).

Highlights

- In the period 1 March 2020 through 1 August 2020, 2 726 599 laboratory tests for SARS-CoV-2 have been conducted nationally.
- Five provinces including Western Cape, Eastern Cape, KwaZulu-Natal, Free State and Gauteng continued to perform the majority (83%) of tests in week 31.
- Free State province had the highest testing rate (482 per 100 000 persons) in week 31, and decreased testing rates were observed in Western Cape, Eastern Cape, KwaZulu-Natal and Gauteng provinces.
- The percentage testing positive decreased slightly from 31.5% in week 29, to 30.8% in week 30 and to 29.0% in week 31.
- Free state (34.6%), North West (34.3%), Mpumalanga (33.6%) and KwaZulu-Natal (31.1%) provinces had the highest percentage testing positive in week 31.
- Compared to the previous week, the percentage testing positive increased in Free State province, and decreased in Western Cape, Eastern Cape, KwaZulu-Natal and Gauteng.
- The mean turnaround time in week 31 was 5.7 days in the public sector and 1.6 days in the private sector.



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) hospitalized 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. Test results were automatically fed into a data warehouse after result authorisation. We excluded specimens collected outside South Africa and duplicate test results for an individual. 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 2019 mid-year population estimates from Statistics South Africa to calculate the testing rate, expressed as tests per 100 000 persons. Patient admission status was determined for public sector tests 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 level results included only public sector data, and were mapped based on the testing facility. Estimates of overall prevalence were derived using regression techniques. Estimates were adjusted to produce district-specific positive test prevalence based on the average age profile, the average sex composition, and the average balance between clinical and CST tests across the entire public testing data for the week. This adjustment allows more accurate comparison of the proportion testing positive across districts.

The report includes tests conducted between 1 March 2020 (week 10), the week when the first case of COVID-19 was confirmed, and 1 August 2020 (week 31).

TESTING VOLUMES AND PROPORTION TESTING POSITIVE

From 1 March through 1 August 2020, 2 726 599 laboratory tests for SARS-CoV-2 were performed. The number of tests performed increased to week 21, however decreased in weeks 22 and 23 due to a limited supply of extraction and testing kits. Increased volumes of tests were observed week on week from week 24 to week 28, with the highest number of tests performed in week 28 (n=271 382). Testing volumes have subsequently decreased since week 29, with 160 703 tests performed in week 31. 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).

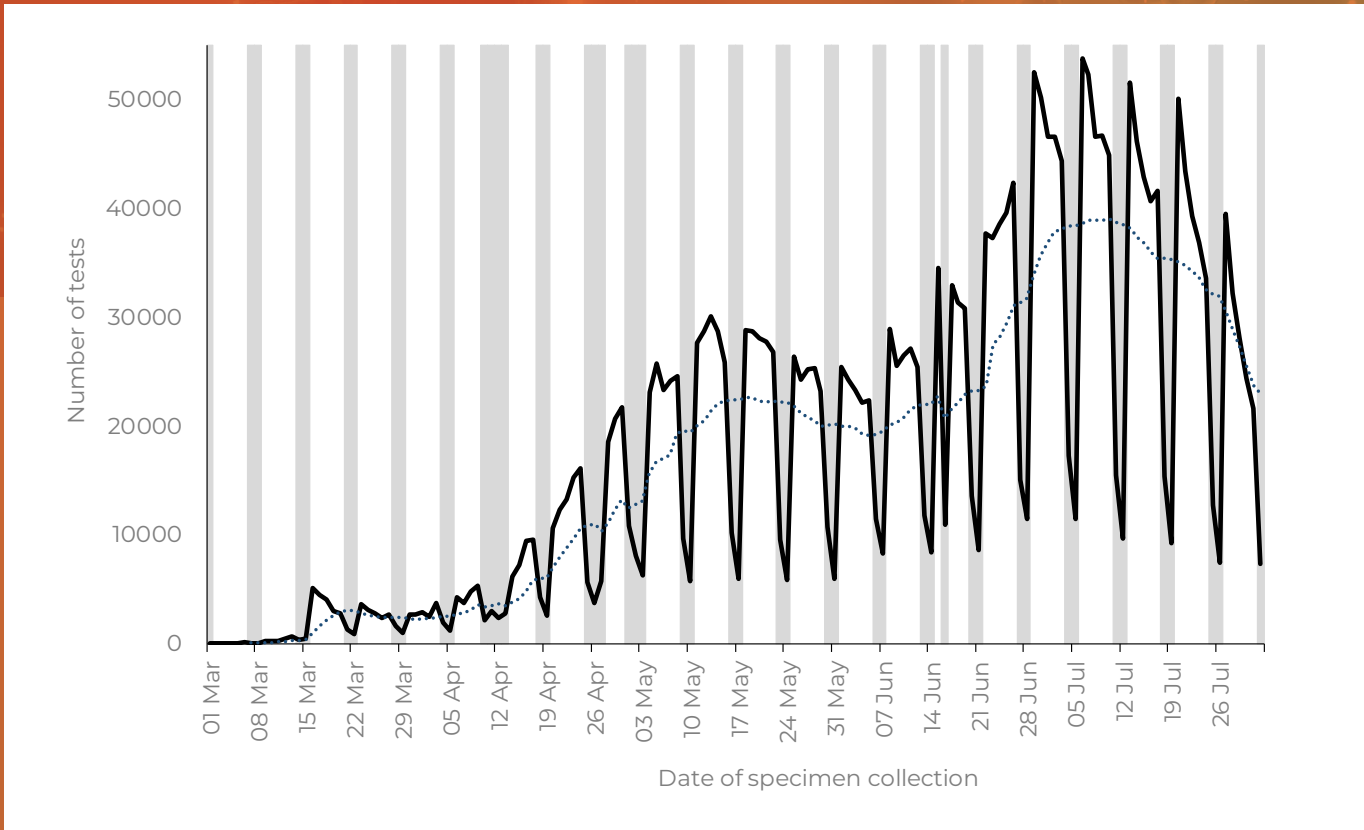


Figure 1. Number of laboratory tests conducted by date of specimen collection, South Africa, 1 March –1 August 2020. Blue dotted line shows the 7-day moving average of the number of tests conducted. Grey bars highlight weekend days and public holidays.

The overall percentage testing positive from week 10 through 31 was 18.4% (Table 1). The percentage testing positive increased week on week from week 18 to a peak of 31.5% in week 29. Since week 30, there has been a small decrease in the percentage testing positive, from 30.8% in week 30 to 29.0% in week 31 (P<0.001) (Figure 2).

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Table 1. Weekly number of tests conducted and positive tests, South Africa, 1 March –1 August 2020

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)
10	01-Mar	407 (0.0)	9	2.2
11	08-Mar	2 321 (0.1)	87	3.7
12	15-Mar	21 326 (0.8)	826	3.9
13	22-Mar	17 043 (0.6)	466	2.7
14	29-Mar	17 380 (0.6)	394	2.3
15	05-Apr	24 625 (0.9)	569	2.3
16	12-Apr	41 893 (1.5)	1 043	2.5
17	19-Apr	75 950 (2.8)	1 939	2.6
18	26-Apr	89 513 (3.3)	2 904	3.2
19	03-May	136 949 (5.0)	5 553	4.1
20	10-May	157 004 (5.8)	7 389	4.7
21	17-May	155 631 (5.7)	10 553	6.8
22	24-May	141 058 (5.2)	11 698	8.3
23	31-May	135 021 (5.0)	13 524	10.0
24	07-Jun	153 720 (5.6)	20 471	13.3
25	14-Jun	162 629 (6.0)	29 816	18.3
26	21-Jun	219 436 (8.0)	50 318	22.9
27	28-Jun	269 041 (9.9)	69 554	25.9
28	05-Jul	271 382 (10.0)	79 750	29.4
29	12-Jul	248 165 (9.1)	78 191	31.5
30	19-Jul	225 402 (8.3)	69 330	30.8
31	26-Jul	160 703 (5.9)	46 524	29.0
Total		2 726 599 (100.0)	500 908	18.4

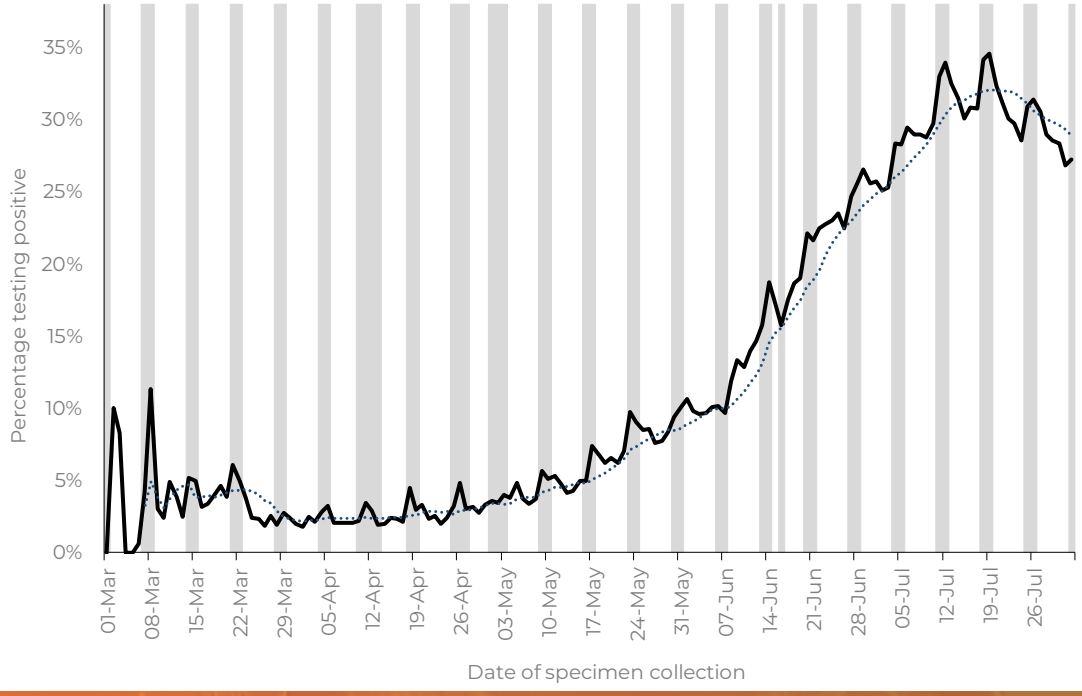

Figure 2. Percentage of laboratory tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March – 1 August 2020. Blue dotted line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

TESTING IN PRIVATE AND PUBLIC SECTORS

From 1 March through 1 August, 1 235 342 laboratory tests were conducted in public sector laboratories, with 15.7% testing positive. Over this same period, private sector laboratories conducted 1 491 257 tests, with 20.6% testing positive (Table 2). Overall the public sector has conducted 45.3% of tests and accounted for 38.8% of cases. The percentage testing positive decreased slightly in both the public and private sectors in the past week, although it remained slightly higher in the private sector (29.4%) compared to the public sector (28.0%) (P<0.001).

The mean turnaround time has improved since week 29, and in week 31 was 3.5 days overall; 5.7 days in the public sector and 1.6 days in the private sector (Figure 3). Among tests conducted in the public sector in the five provinces conducting the largest volumes of tests, the turnaround time in week 31 remained highest in KwaZulu-Natal (10.2 days) and was lowest in the Western Cape (2.7 days) and Eastern Cape (2.8 days) provinces. Decreases in turnaround time were observed in KwaZulu-Natal, Gauteng and Eastern Cape in the past week (Figure 4). Thirteen of the 20 NHLS laboratories performing testing for SARS-CoV-2 had improved turnaround times in week 31 compared to the previous week, although the large majority of public sector laboratories continued to have turnaround times >48 hours (Figure 5).

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Table 2. Weekly number of tests conducted and positive tests, by healthcare sector, South Africa, 1 March – 1 August 2020

		Public sector		Private sector		Public sector proportion of		Ratio of PTP[a]
Week number	Week beginning	Tests	Positive tests n (%)	Tests	Positive tests n (%)	Tests (%)	Positive tests (%)	
10	01-Mar	250	5 (2.0)	157	4 (2.5)	61.4	55.6	0.785
11	08-Mar	349	12 (3.4)	1 972	75 (3.8)	15.1	13.8	0.904
12	15-Mar	1 344	51 (3.8)	19 982	775 (3.9)	6.3	6.2	0.976
13	22-Mar	3 359	123 (3.7)	13 684	343 (2.5)	19.7	24.6	1.461
14	29-Mar	5 614	158 (2.8)	11 766	236 (2.0)	32.3	40.1	1.403
15	05-Apr	11 359	322 (2.8)	13 266	247 (1.9)	46.1	56.6	1.523
16	12-Apr	23 788	608 (2.6)	18 105	435 (2.4)	56.8	58.3	1.064
17	19-Apr	54 213	1 481 (2.7)	21 737	458 (2.1)	71.4	76.4	1.297
18	26-Apr	66 268	2 296 (3.5)	23 245	608 (2.6)	74.0	79.1	1.325
19	03-May	92 387	4 260 (4.6)	44 562	1 293 (2.9)	67.5	76.7	1.589
20	10-May	105 008	5 119 (4.9)	51 996	2 270 (4.4)	66.9	69.3	1.117
21	17-May	95 510	6 641 (7.0)	60 121	3 912 (6.5)	61.4	62.9	1.069
22	24-May	74 323	5 970 (8.0)	66 735	5 728 (8.6)	52.7	51.0	0.936
23	31-May	60 332	6 127 (10.2)	74 689	7 397 (9.9)	44.7	45.3	1.025
24	07-Jun	60 077	7 381 (12.3)	93 643	13 090 (14.0)	39.1	36.1	0.879
25	14-Jun	56 052	11 116 (19.8)	10 6577	18 700 (17.5)	34.5	37.3	1.130
26	21-Jun	82 763	18 928 (22.9)	136 673	31 390 (23.0)	37.7	37.6	0.996
27	28-Jun	97 490	25 224 (25.9)	171 551	44 330 (25.8)	36.2	36.3	1.001
28	05-Jul	107 086	30 079 (28.1)	164 296	49 671 (30.2)	39.5	37.7	0.929
29	12-Jul	99 546	28 839 (29.0)	148 619	493 52 (33.2)	40.1	36.9	0.872
30	19-Jul	85 715	24 838 (29.0)	139 687	44 492 (31.9)	38.0	35.8	0.910
31	26-Jul	52 509	14 686 (28.0)	10 8194	31 838 (29.4)	32.7	31.6	0.950
Total		**1 235 342**	**194 264 (15.7)**	**1 491 257**	**306 644 (20.6)**	**45.3**	**38.8**	**0.765**

[a] Ratio of proportion 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)

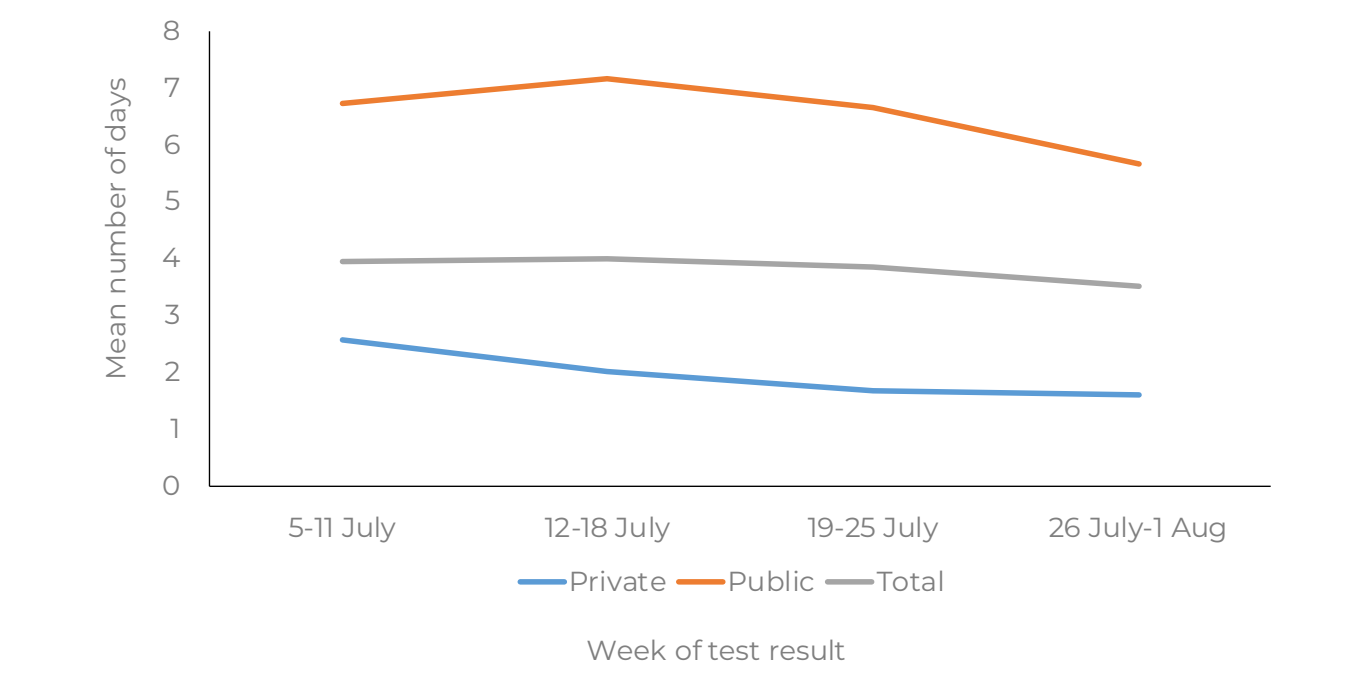

Figure 3. Mean number of days between date of specimen collection and date of test result, by week of test result, South Africa, 5 July – 1 August 2020

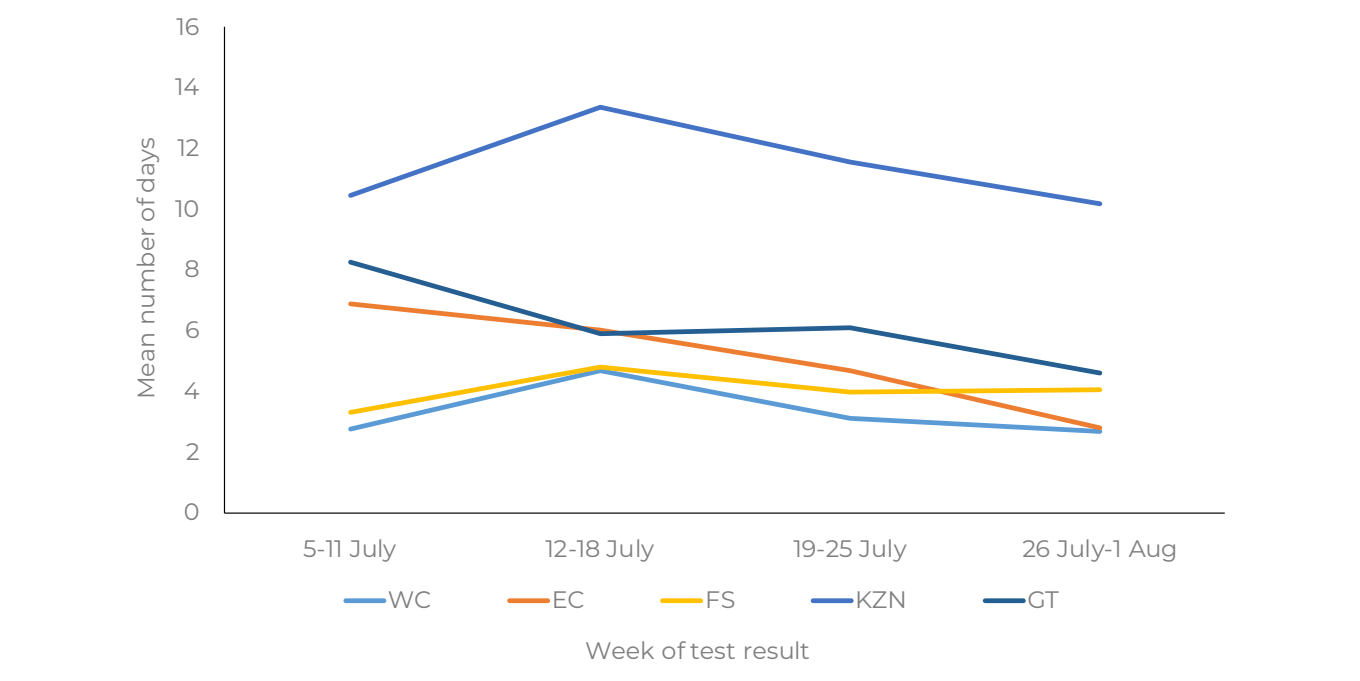

Figure 4. Mean number of days between date of specimen collection and date of test result, by week of test result and province, South Africa, 5 July – 1 August 2020. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal, GT, Gauteng

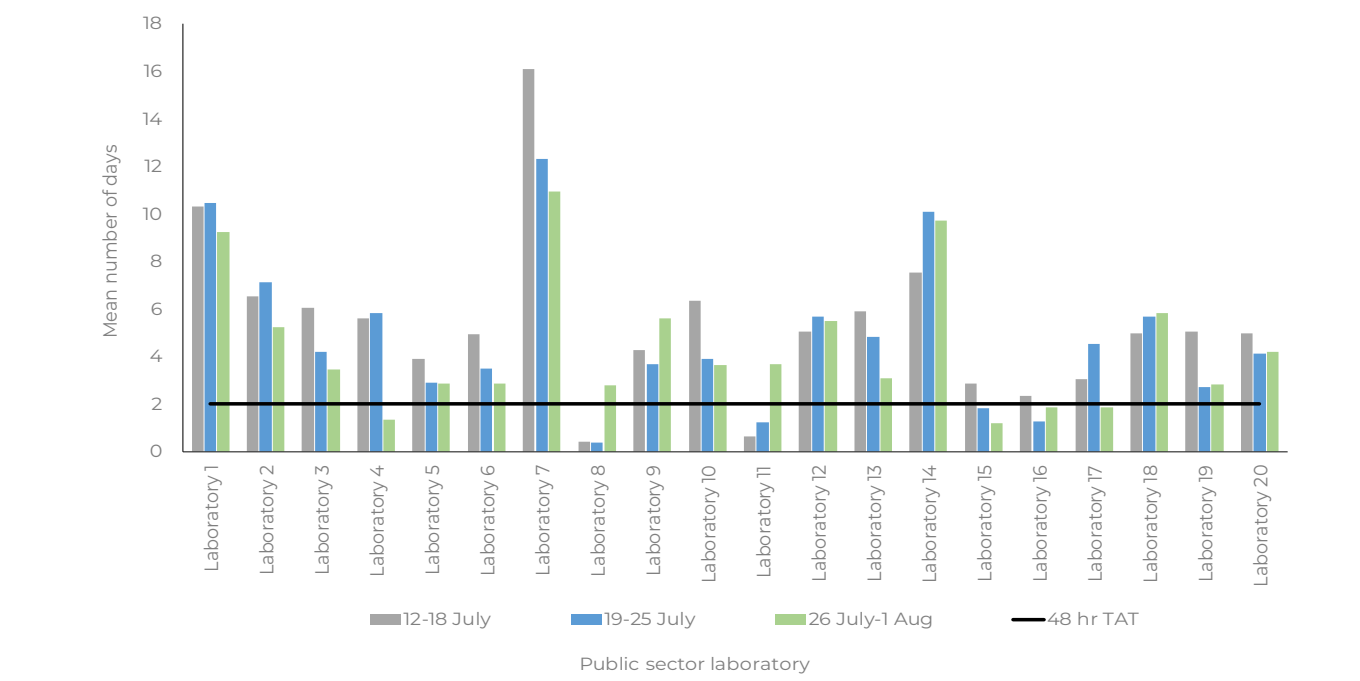

Figure 5. Mean number of days between date of specimen collection and date of test result, by public sector laboratory, 12 July- 1 August 2020. The horizontal black line indicates 48-hour turnaround time (TAT).

TESTING BY PROVINCE

Gauteng continued to perform the largest number of tests in week 31 accounting for 32.2% of tests, followed by KwaZulu-Natal which accounted for 20.9% of tests (Table 3). Five provinces including Western Cape, Eastern Cape, KwaZulu-Natal, Free State and Gauteng continued to perform the majority of tests (83%) in week 31, with Free State having the highest testing rate (482 per 100 000 persons) (Figure 6). Testing rates have decreased in Western Cape, Eastern Cape, KwaZulu-Natal and Gauteng over the past few weeks, while an increased testing rate was observed in the Northern Cape.

Free state (34.6%), North West (34.3%), Mpumalanga (33.6%) and KwaZulu-Natal (31.1%) provinces had the highest percentage testing positive in week 31 (Figure 7). Compared to the previous week, the percentage testing positive increased significantly in Free State province (P<0.001), and decreased in 4 provinces (Western Cape (P<0.001), Eastern Cape (P<0.001), KwaZulu-Natal (P<0.001), and Gauteng (P<0.001). The percentage testing positive was higher than the national average, not weighted for population size, in the Eastern Cape, Free State, KwaZulu-Natal, North West and Mpumalanga provinces (Figure 7).

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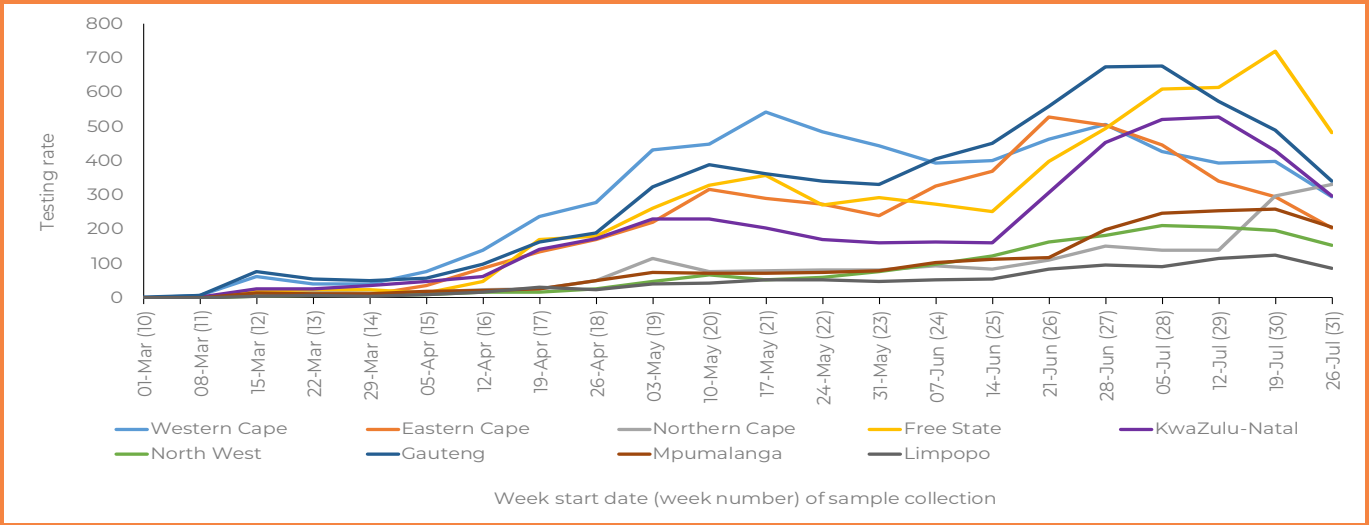

Figure 6. Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 1 March – 1 August 2020.

Table 3. Weekly number of tests performed and positive tests, by province, South Africa, 12 July-1 August 2020

		12-18 July		19-25 July		26 July -1 August		
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**
Western Cape	6 844 272	26 825	6 544 (24.4)	27 267	6 312 (23.1)	20 212	4 115 (20.4)	295
Eastern Cape	6 712 276	22 789	8 245 (36.2)	19 783	6 715 (33.9)	13 728	4 058 (29.6)	205
Northern Cape	1 263 875	1 748	453 (25.9)	3 755	944 (25.1)	4174	986 (23.6)	330
Free State	2 887 465	17 718	5 382 (30.4)	20 772	6 670 (32.1)	13 927	4 825 (34.6)	482
KwaZulu-Natal	11 289 086	59 562	18 407 (30.9)	48 402	16 210 (33.5)	33 536	10 432 (31.1)	297
North West	4 027 160	8 296	3 067 (37.0)	7 942	2 680 (33.7)	6 132	2 105 (34.3)	152
Gauteng	15 176 115	87 025	29 653 (34.1)	74 013	23 034 (31.1)	51 719	14 966 (28.9)	341
Mpumalanga	4 592 187	11 697	3 856 (33.0)	11 843	4 050 (34.2)	9 498	3 189 (33.6)	207
Limpopo	5 982 584	6 896	1 420 (20.6)	7 464	1 633 (21.9)	5 144	1 094 (21.3)	86
Unknown		5 609	1 164 (20.8)	4 161	1 082 (26.0)	2 633	754 (28.6)	
Total	58 750 220	248 165	78 191 (31.5)	22 5402	69 330 (30.8)	160 703	46 524 (29.0)	274

[a]2019 Mid-year population Statistics SA

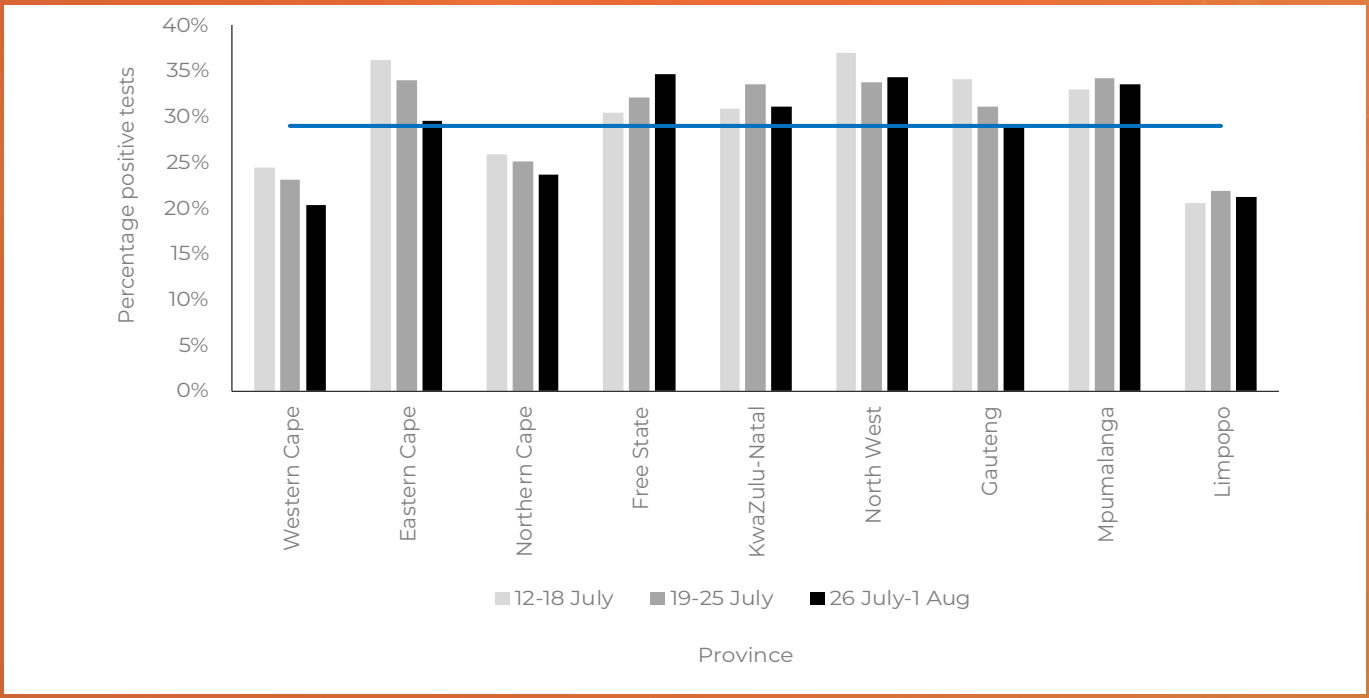

Figure 7. Weekly percentage testing positive, by province, South Africa, 12 July-1 August 2020. The horizontal blue line shows the national mean for week 31, beginning 26 July 2020.

TESTING IN THE PUBLIC SECTOR

In the public sector, the percentage testing positive decreased slightly from 29.0% in week 30 to 28.0% in week 31 (P<0.001) (Table 4). The percentage testing positive in week 31 was highest in North West (39.9%), Mpumalanga (36.7%) and KwaZulu-Natal (36.1%) provinces. The percentage testing positive in the public sector remains higher than the national average, not weighted for population size, in the Eastern Cape, Free State, KwaZulu-Natal, North West and Mpumalanga provinces (Figure 8).

Table 4. Weekly number of tests conducted and positive tests in the public sector, by province, South Africa, 12 July-1 August 2020

	12-18 July		19-25 July		26 July -1 Aug	
Province	**No. of tests**	**No. positive tests (%)**	**No. of tests**	**No. positive tests (%)**	**No. of tests**	**No. positive tests (%)**
Western Cape	14 280	3 506 (24.6)	13 816	3 238 (23.4)	8 588	1 925 (22.4)
Eastern Cape	13 221	4 383 (33.2)	11 980	3 841 (32.1)	8 673	2 496 (28.8)
Northern Cape	11	2 (18.2)	1115	160 (14.3)	1 693	317 (18.7)

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Free State	10 772	2 674 (24.8)	11 700	3 307 (28.3)	5 665	1 736 (30.6)
KwaZulu-Natal	25 221	7 456 (29.6)	14 856	4 934 (33.2)	6 874	2 483 (36.1)
North West	2 056	681 (33.1)	1 887	648 (34.3)	1 589	634 (39.9)
Gauteng	28 138	8 668 (30.8)	25 170	7 290 (29.0)	16 723	4 389 (26.2)
Mpumalanga	2 903	878 (30.2)	1 778	705 (39.7)	948	348 (36.7)
Limpopo	2 944	591 (20.1)	3 413	715 (20.9)	1 734	358 (20.6)
Unknown	0	0 (0.0)	0	0 (0.0)	22	0 (0.0)
Total	99 546	28 839 (29.0)	85 715	24 838 (29.0)	52 509	14 686 (28.0)

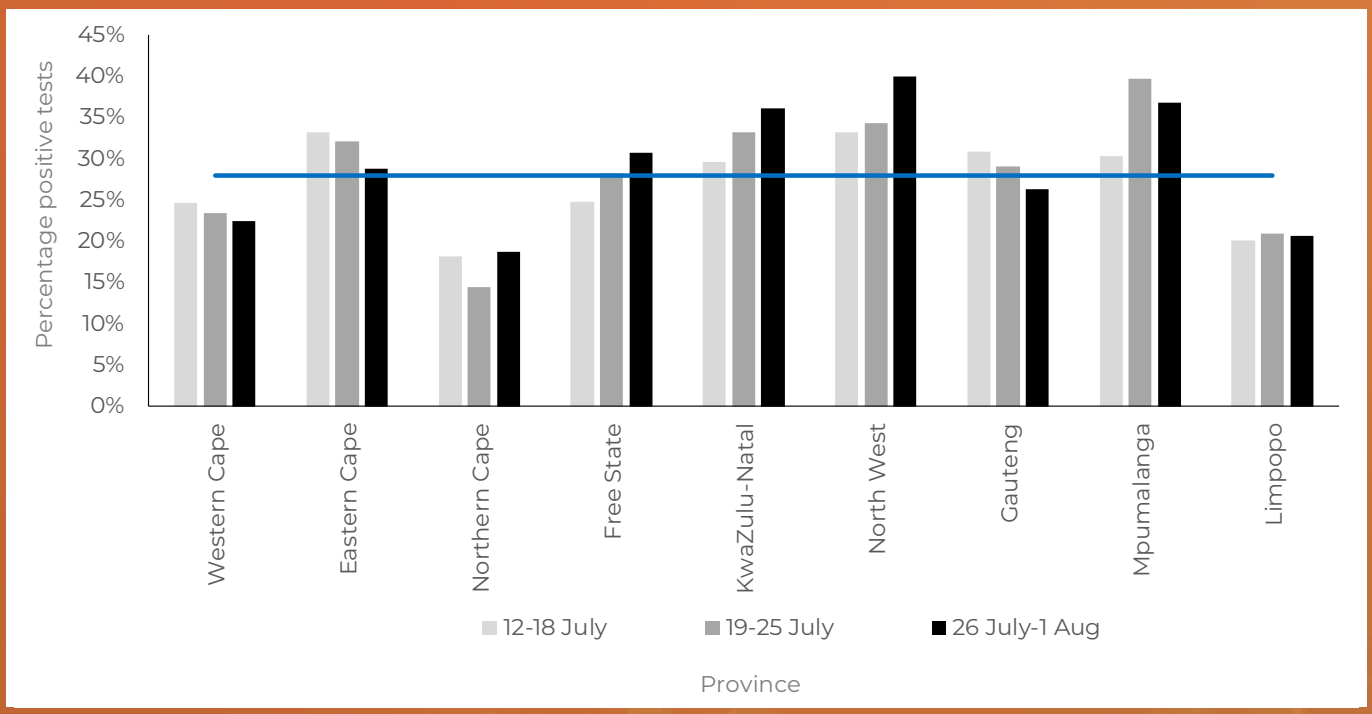

Figure 8. Weekly percentage testing positive in the public sector, by province, South Africa, 12 July-1 August 2020. The horizontal blue line shows the national mean for week 31, beginning 26 July 2020.

PUBLIC FACILITIES WITH HIGH PROPORTIONS TESTING POSITIVE

Table 5 shows the 25 public healthcare facilities with the highest proportion testing positive nationally in the week of 26 July-1 August. All 25 facilities continue to show a proportion testing positive greater than 50%. Seven facilities are in the Eastern Cape, five in Gauteng, four in Free State, three each in North West and KwaZulu-Natal, two in Mpumalanga, and one in the Western Cape.

Table 5. Public healthcare facilities with a high proportion testing positive, 26 July-1 August 2020

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	North West	57	0.754 (0.643;0.866)
Facility 2	Western Cape	33	0.727 (0.575;0.879)
Facility 3	Eastern Cape	25	0.720 (0.544;0.896)
Facility 4	Mpumalanga	27	0.704 (0.531;0.876)
Facility 5	Eastern Cape	55	0.673 (0.549;0.797)
Facility 6	Free State	84	0.667 (0.566;0.767)
Facility 7	Eastern Cape	26	0.654 (0.471;0.837)
Facility 8	Gauteng	59	0.644 (0.522;0.766)
Facility 9	Eastern Cape	131	0.641 (0.559;0.723)
Facility 10	Free State	27	0.630 (0.447;0.812)
Facility 11	Gauteng	57	0.614 (0.488;0.740)
Facility 12	Gauteng	237	0.603 (0.541;0.666)
Facility 13	Gauteng	72	0.597 (0.484;0.711)
Facility 14	Gauteng	103	0.592 (0.497;0.687)
Facility 15	KwaZulu-Natal	198	0.586 (0.517;0.654)
Facility 16	Free State	71	0.577 (0.463;0.692)
Facility 17	KwaZulu-Natal	52	0.577 (0.443;0.711)
Facility 18	KwaZulu-Natal	80	0.575 (0.467;0.683)
Facility 19	Eastern Cape	92	0.565 (0.464;0.667)

Facility 20	North West	80	0.563 (0.454;0.671)
Facility 21	Eastern Cape	27	0.556 (0.368;0.743)
Facility 22	Mpumalanga	27	0.556 (0.368;0.743)
Facility 23	Free State	58	0.534 (0.406;0.663)
Facility 24	North West	38	0.526 (0.368;0.685)
Facility 25	Eastern Cape	91	0.516 (0.414;0.619)

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

PUBLIC SECTOR TESTING: HEALTH DISTRICT-LEVEL RESULTS

The 25 municipalities and metropolitan health sub-districts with the highest adjusted proportion testing positive nationally in the week of 26 July – 1 August 2020 are shown in Table 6. All sub-districts in this table have a proportion testing positive of >35%. The shifting geo-centre of the outbreak is indicated by the increasing dominance of districts in Mpumalanga, North West and KwaZulu-Natal provinces in this list. None of the Cape Town sub-districts remain on the list, and only one from the Western Cape.

The data for every district with a non-zero proportion testing positive or where the range of the confidence interval is not more than 30% (15% either side of the point estimate) for the past week is presented in Figure 9.

Table 6. Health sub-districts with the highest proportion testing positive based on public sector data for the week of 26 July-1 August 2020

Health district or sub-district	Province	PTP (95% CI)	Previous week
Ngqushwa	Eastern Cape	0.622 (0.507-0.736)	0.516 (0.405-0.626)
Govan Mbeki	Mpumalanga	0.614 (0.497-0.732)	0.520 (0.439-0.601)
Merafong City	Gauteng	0.542 (0.447-0.638)	0.374 (0.315-0.433)
Lekwa	Mpumalanga	0.493 (0.382-0.604)	0.556 (0.473-0.640)
Thembisile	Mpumalanga	0.488 (0.376-0.601)	0.375 (0.286-0.465)
Newcastle	KwaZulu-Natal	0.470 (0.426-0.514)	0.443 (0.408-0.478)
Amahlathi	Eastern Cape	0.466 (0.404-0.528)	0.510 (0.457-0.562)

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uMngeni	KwaZulu-Natal	0.457 (0.396-0.518)	0.339 (0.276-0.403)
Tlokwe City Council	NorthWest	0.442 (0.364-0.520)	0.411 (0.341-0.482)
Ekurhuleni East 1	Gauteng	0.440 (0.388-0.491)	0.357 (0.319-0.396)
Ekurhuleni East 2	Gauteng	0.437 (0.384-0.490)	0.447 (0.407-0.487)
City of Matlosana	NorthWest	0.437 (0.389-0.484)	0.459 (0.416-0.503)
Ngwathe	Free State	0.433 (0.364-0.503)	0.388 (0.336-0.440)
Beaufort West	Western Cape	0.428 (0.334-0.521)	0.359 (0.273-0.446)
Masilonyana	Free State	0.421 (0.272-0.569)	0.210 (0.134-0.286)
Umdoni	KwaZulu-Natal	0.410 (0.293-0.528)	0.362 (0.251-0.473)
Elundini	Eastern Cape	0.410 (0.270-0.550)	0.336 (0.247-0.425)
Ramotshere Moiloa	NorthWest	0.408 (0.308-0.508)	0.293 (0.222-0.365)
uPhongolo	KwaZulu-Natal	0.408 (0.259-0.556)	0.481 (0.375-0.586)
Endumeni	KwaZulu-Natal	0.403 (0.292-0.514)	0.493 (0.416-0.571)
Hibiscus Coast	KwaZulu-Natal	0.400 (0.312-0.487)	0.415 (0.356-0.474)
Msukaligwa	Mpumalanga	0.396 (0.311-0.481)	0.519 (0.441-0.596)
Gariep	Eastern Cape	0.390 (0.273-0.506)	0.248 (0.157-0.339)
Lukanji	Eastern Cape	0.387 (0.320-0.453)	0.381 (0.328-0.434)
Westonaria	Gauteng	0.385 (0.265-0.505)	0.257 (0.146-0.368)

95% CI: 95% confidence interval; PTP: adjusted positive test proportion; PTP marked in red have current week proportions testing positive that are significantly higher than the previous week. PTP marked in blue have current week proportions testing positive that are significantly lower than the previous week.

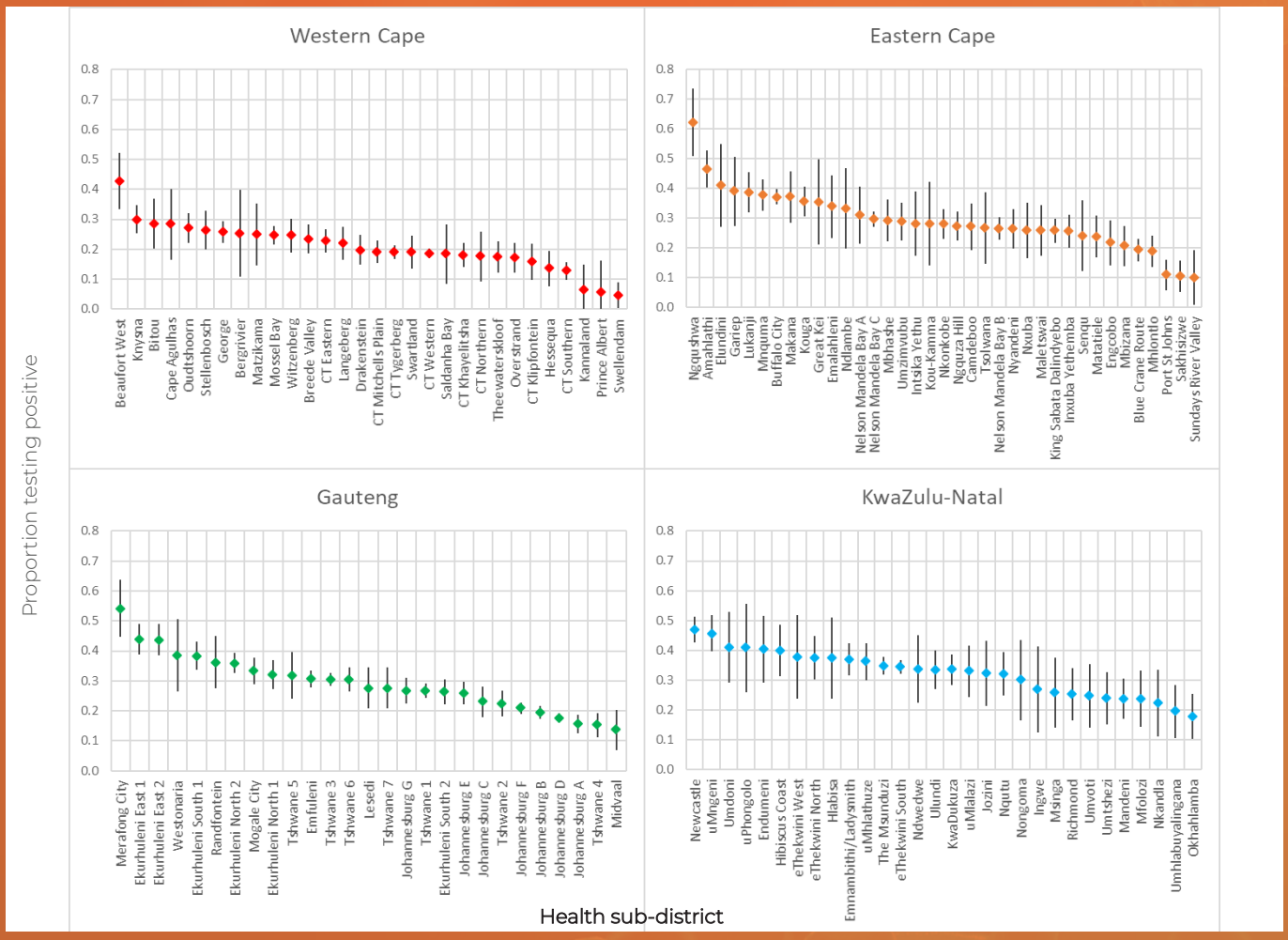

Figure 9. Proportions testing positive by health sub-districts in Western Cape, Eastern Cape, Gauteng, KwaZulu-Natal, North West, Free State, Limpopo, Mpumalanga and Northern Cape provinces based on public sector data for the week of 26 July-1 August 2020.

Figure 9. Proportions testing positive by health sub-districts in Western Cape, Eastern Cape, Gauteng, KwaZulu-Natal, North West, Free State, Limpopo, Mpumalanga and Northern Cape provinces based on public sector data for the week of 26 July-1 August 2020.

The spatial pattern of adjusted proportions testing positive in public facilities by health district and sub-district are shown for South Africa (Figure 10), and the three most affected provinces: Western Cape (Figure 11), Eastern Cape (Figure 12), and Gauteng (Figure 13).

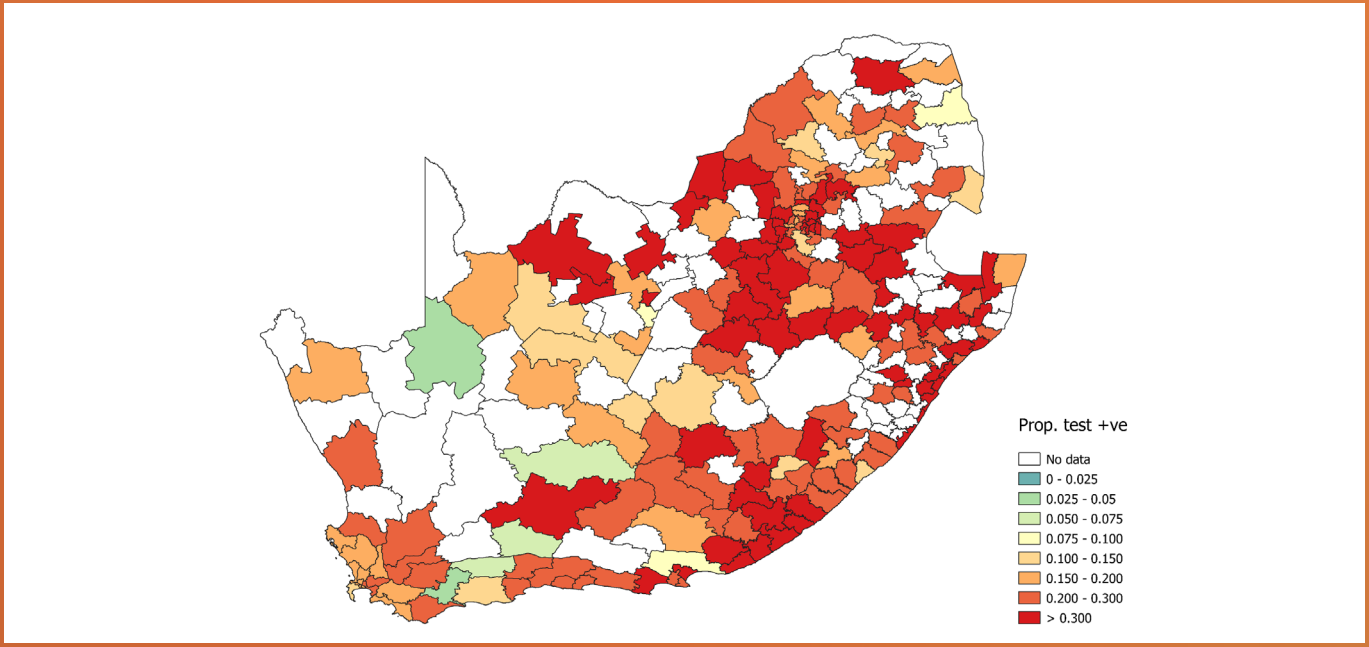

Figure 10. Proportion testing positive by health sub-district based on public sector data for the week of 26 July – 1 August 2020, South Africa. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

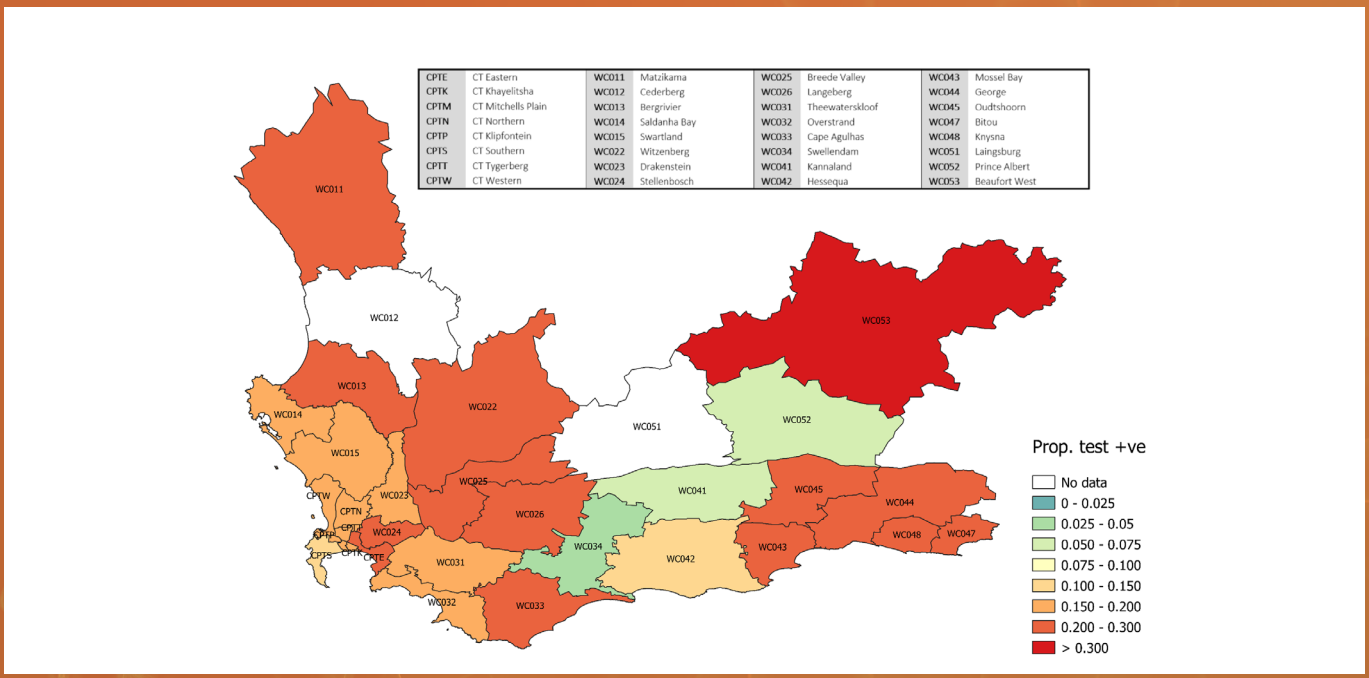

Figure 11. Health sub-districts in the Western Cape province with a high proportion testing positive based on public sector data for the week of 26 July-1 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%

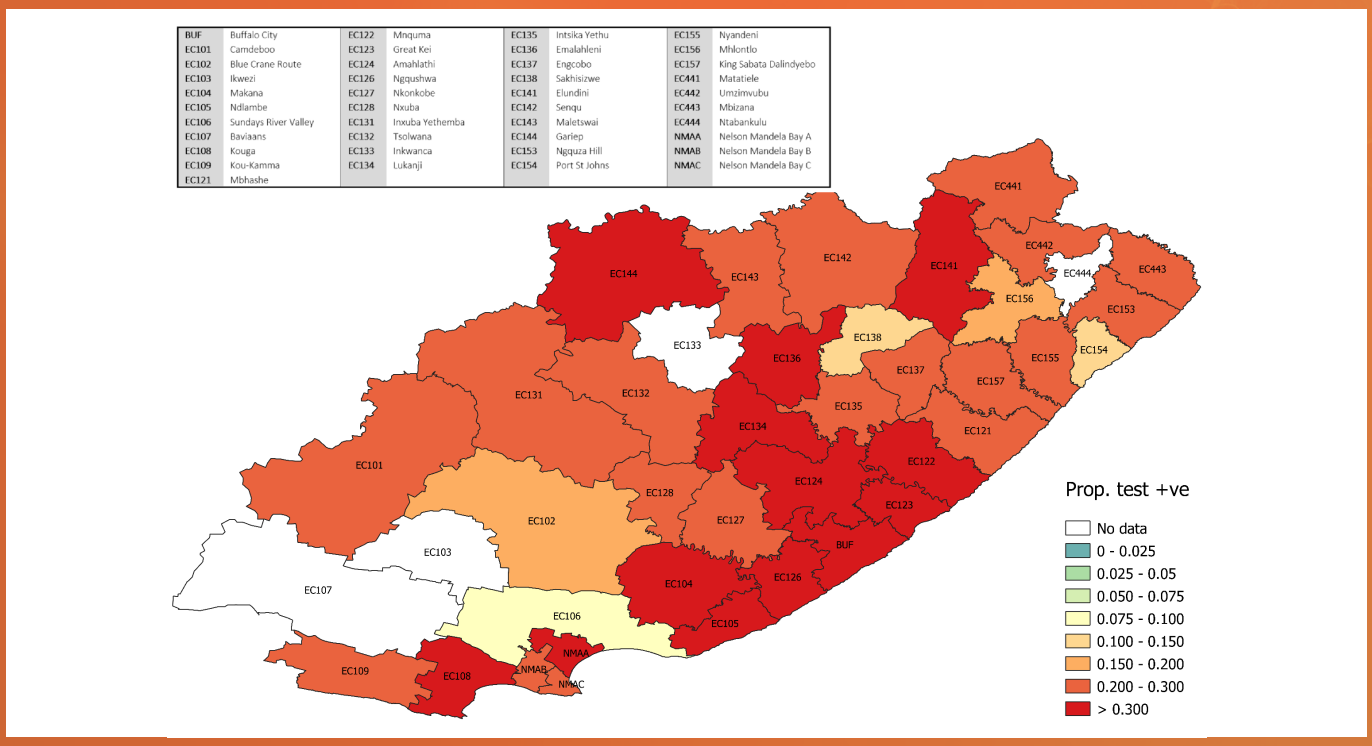

Figure 12. Health sub-districts in the Eastern Cape province with a high proportion testing positive based on public sector data for the week of 26 July-1 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

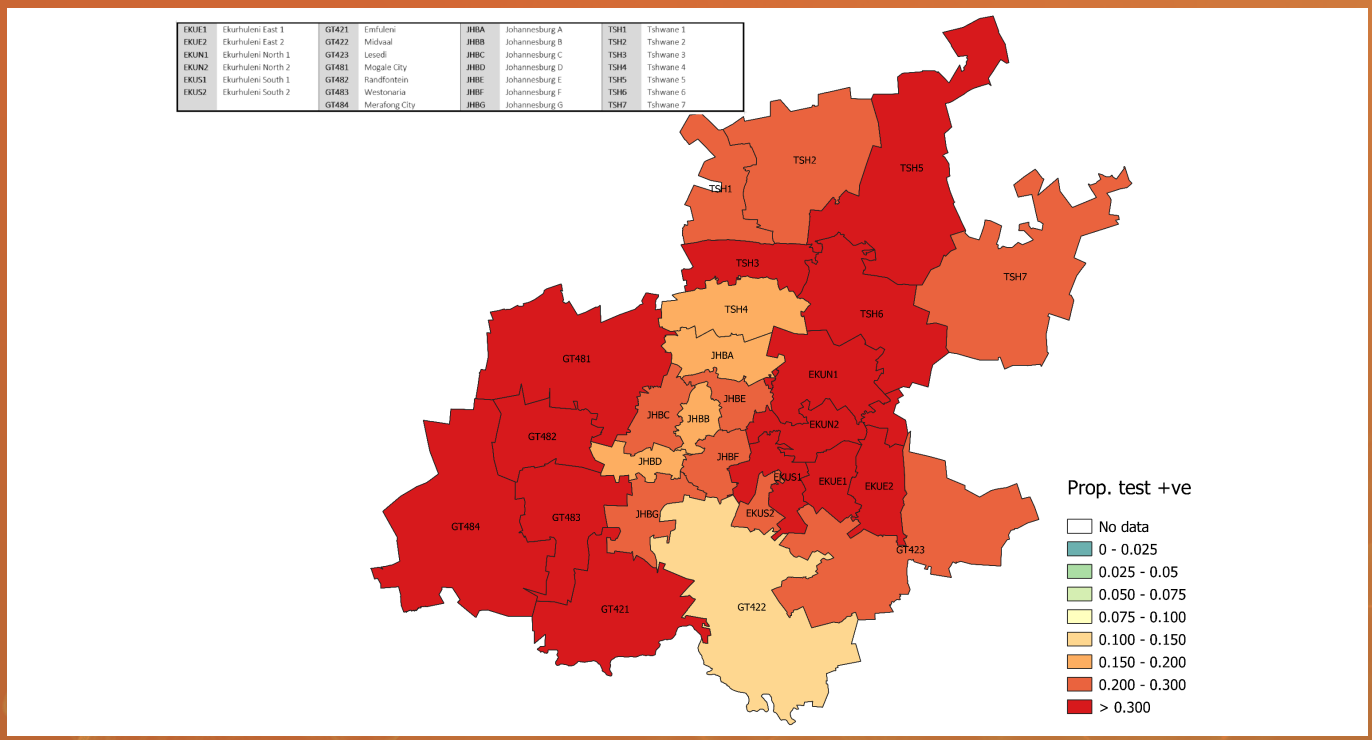

Figure 13. Health sub-districts in Gauteng Province with a high proportion testing positive based on public sector data for the week of 26 July-1 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

TESTING BY PATIENT ADMISSION STATUS

In week 31, 23.0% of tests in the public sector were performed for hospitalised patients (Figure 14). Among the five provinces performing the largest volume of tests in week 31 (Western Cape, Eastern Cape, Free State, KwaZulu-Natal and Gauteng), the proportion of inpatient tests was highest in KwaZulu-Natal (39.9%). In the past week, the percentage of inpatient tests increased in KwaZulu-Natal, Western Cape and Gauteng. The percentage testing positive in week 31 remained higher among inpatients (30.1%) than outpatients (27.5%) (P<0.001), although the percentage among inpatients had decreased from the previous week (33.0%). In the public sector in week 31 the mean laboratory turnaround time was similar for inpatients (5.5 days) and outpatients (5.9 days), with a reduction in turnaround time for outpatient tests observed in the past week.

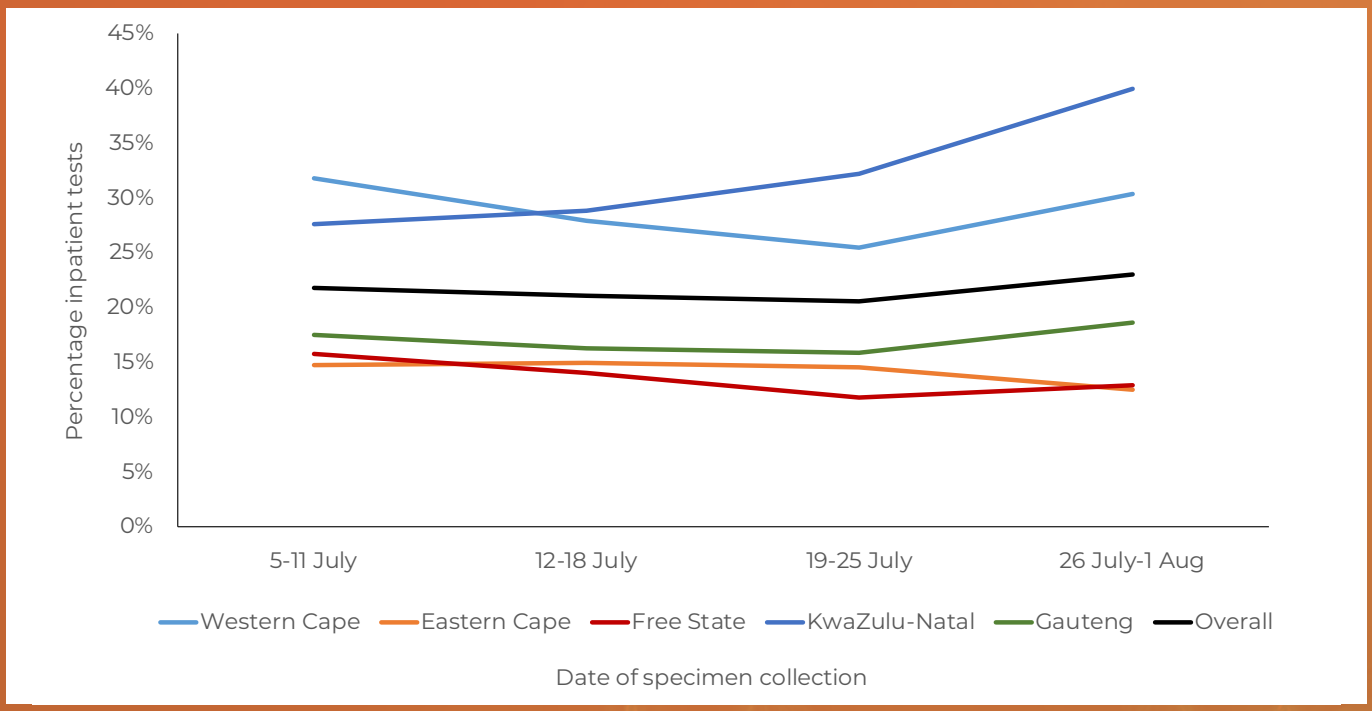

Figure 14. Percentage of inpatient tests performed in the public sector by province, 5 July-1 August 2020

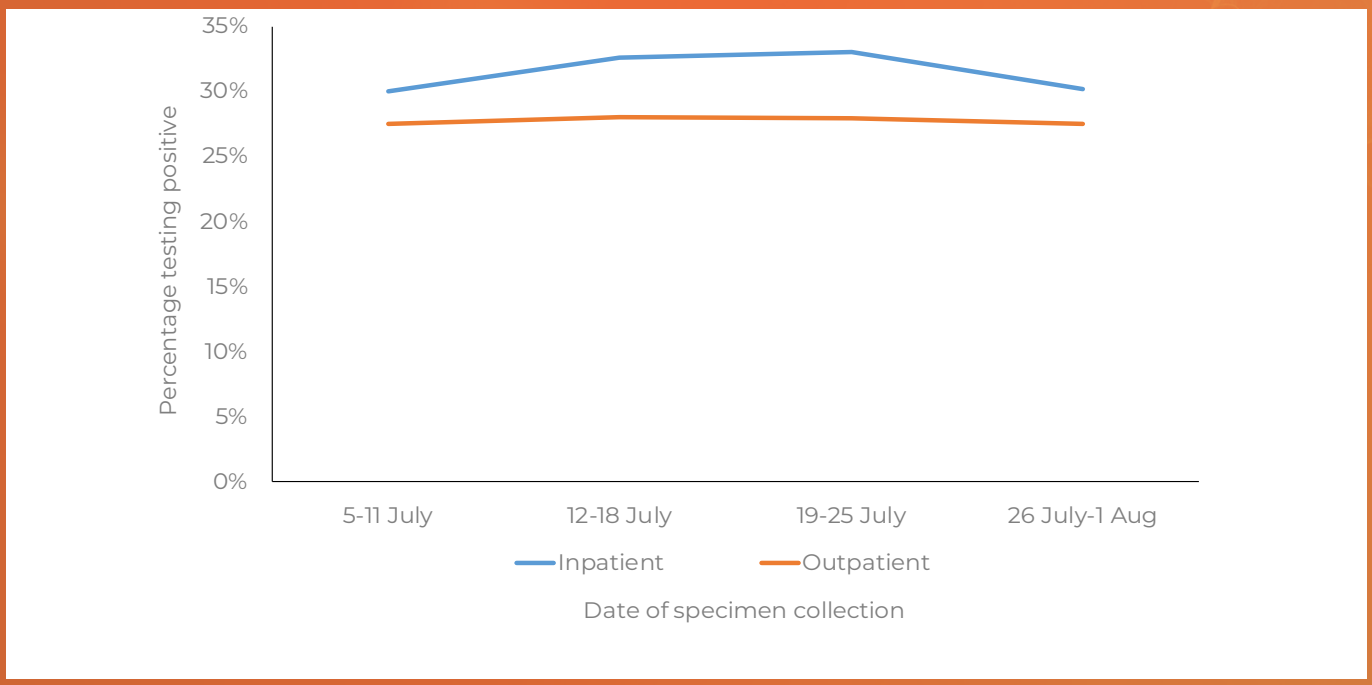

Figure 15. Percentage testing positive by patient admission status in the public sector, 5 July-1 August 2020

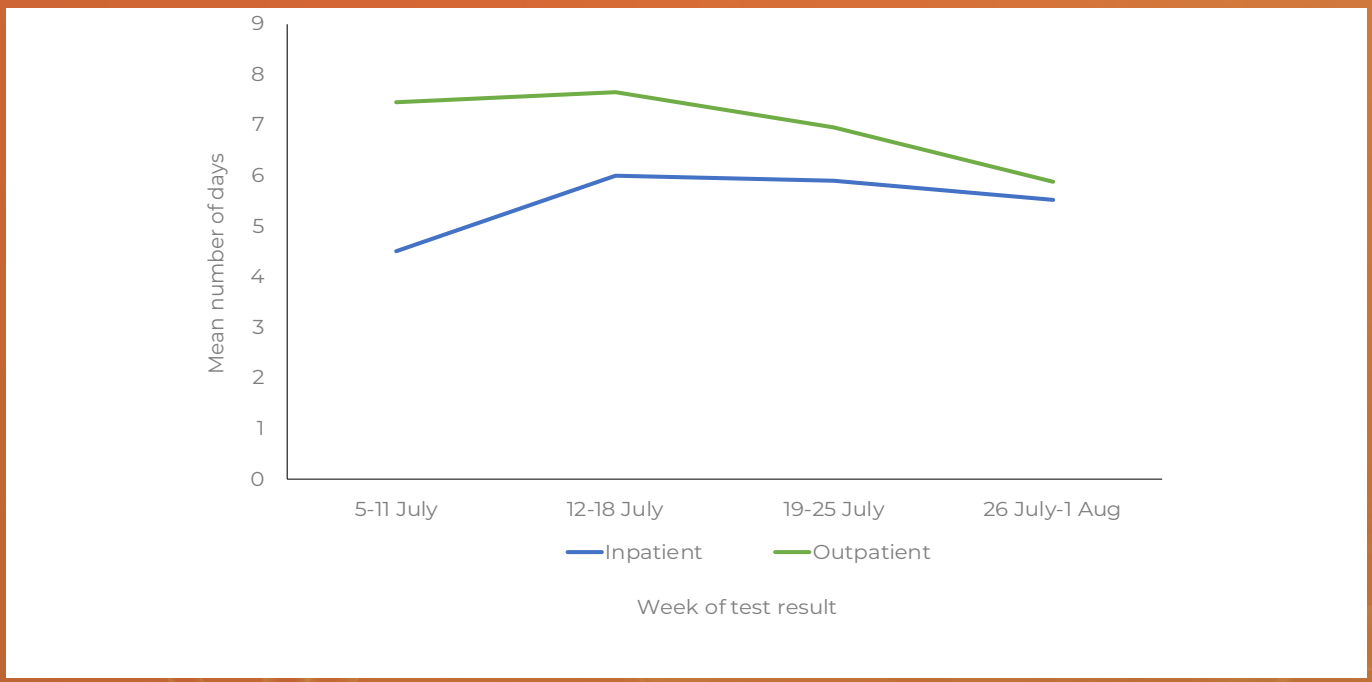

Figure 16. Mean number of days between date of specimen collection and date of test result, by patient admission status and date of test result in the public sector, South Africa, 5 July-1 August 2020.

TESTING BY AGE AND SEX

The mean age of individuals tested in week 31 was 40.2 years and had increased over the past 3 weeks in males and females. The mean age of individuals with positive test results increased in recent weeks and was 42.6 years in week 31, and was the same in males and females (Table 7). The sex ratio (the number of males per 100 females) of individuals with positive test results was 72.9 in week 31. There was an increasing proportion testing positive with increasing age in both males and females (Figure 17). For both sexes, the proportion testing positive in week 31 was lower than the previous two weeks for all age groups, except in the elderly (≥70 years) age group and males aged 10-19 years.

Table 7. Mean age and sex ratio of individuals tested, South Africa, 5 July-1 August 2020

		Mean age of tested (years)		Mean age of cases (years)		Sex ratios (males / 100 females)	
Week number	Week beginning	Males	Females	Males	Females	Tested	Cases
28	5 July	38.2	38.6	40.2	40.0	76.0	72.4
29	12 July	38.5	38.8	40.9	40.7	74.6	70.5
30	19 July	39.2	39.5	41.7	41.4	73.8	70.6
31	26 July	40.0	40.3	42.6	42.6	78.4	72.9

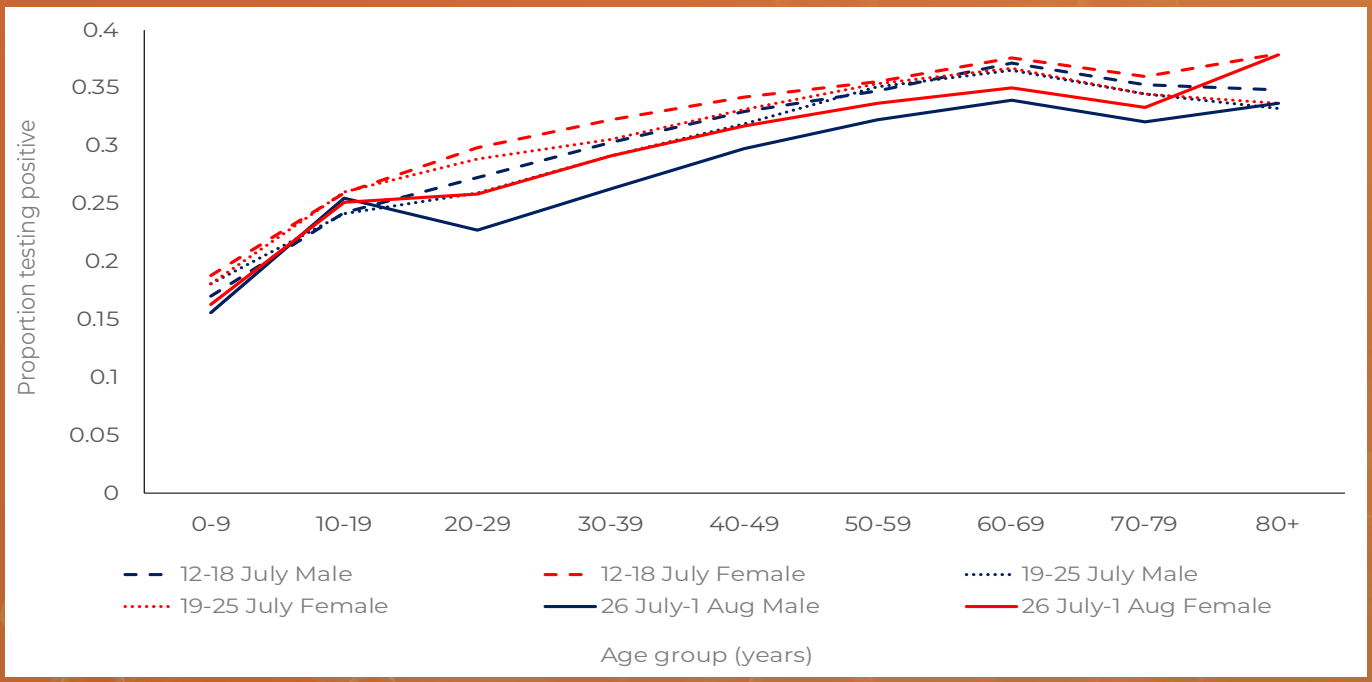

Figure 17. Weekly proportion testing positive by age group and sex, South Africa, 12 July-1 August 2020

From week 30 to week 31, the percentage testing positive decreased from 30.0% to 27.8% in males (P<0.001) and from 31.3% to 29.9% in females (P<0.001) (Table 8). In week 31 the percentage testing positive was higher in females compared to males in the 20-39 years (P<0.001), 40-59 years (P<0.001) and ≥70 years' (P=0.013) age groups.

Table 8. Percentage testing positive by sex and week, South Africa, 5 July-1 August 2020

Age (years)	5 - 11 July		12 - 18 July		19 - 25 July		26 July-1 August	
	Male	Female	Male	Female	Male	Female	Male	Female
0-19	21.0%	23.7%	21.6%	23.8%	21.9%	23.6%	21.1%	21.9%
20-39	27.6%	29.4%	29.1%	31.3%	27.9%	29.8%	24.9%	27.8%
40-59	31.4%	31.6%	33.7%	34.8%	33.3%	34.1%	30.9%	32.6%
60-69	33.0%	34.9%	37.2%	37.6%	36.5%	36.7%	33.9%	35.0%
70+	32.1%	33.6%	35.2%	36.7%	34.1%	34.2%	32.6%	35.1%
Total	28.6%	30.0%	30.5%	32.3%	30.0%	31.3%	27.8%	29.9%

LIMITATIONS

- The backlog in testing of samples by public laboratories affects the reported numbers of tests performed. 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.
- The delay in testing affects the analysis of the testing data and identification of outbreak hotspots.
- Different and changing testing strategies (targeted vs. mass testing) used by different provinces makes percentage testing positive difficult to interpret and compare.
- Health district and sub-district level results included public-sector data only and were mapped based on the testing facility and not place of residence.
- Patient admission status was categorised based on the reported patient facility, which was only available for public sector data and may not reflect whether the patient was actually admitted to hospital.
- Province was determined based on the location of the laboratory where the specimen was registered, which may have resulted in misallocation of tests if the sample was registered in a different province to the patient.

CONCLUSIONS

There has been a reduction in weekly testing volumes over the past 3 weeks, with 63% of tests over this time having been done in the private sector. Five provinces including Western Cape, Eastern Cape, KwaZulu-Natal, Free State and Gauteng continued to perform the majority (83%) of tests in the previous week. Free State province had the highest testing rate (482 per 100 000 persons) in week 31, and decreased testing rates were observed in Western Cape, Eastern Cape, KwaZulu-Natal and Gauteng provinces. The percentage testing positive decreased slightly from 31.5% in week 29, to 30.8% in week 30 and to 29.0% in week 31. Free state (34.6%), North West (34.3%), Mpumalanga (33.6%) and KwaZulu-Natal (31.1%) provinces had the highest percentage testing positive in week 31. Compared to the previous week, the percentage testing positive increased in Free State province, and decreased in Western Cape, Eastern Cape, KwaZulu-Natal and Gauteng ($P<0.001$). Percentage testing positive increased with increasing age, ranging from 21.6% in the 0-19 years' age group to 34.1% in ≥70 years' age group in week 31. Laboratory turnaround times improved in the past week (1.6 days in the private sector and 5.7 days in the public sector).