COVID-19 TESTING SUMMARY

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

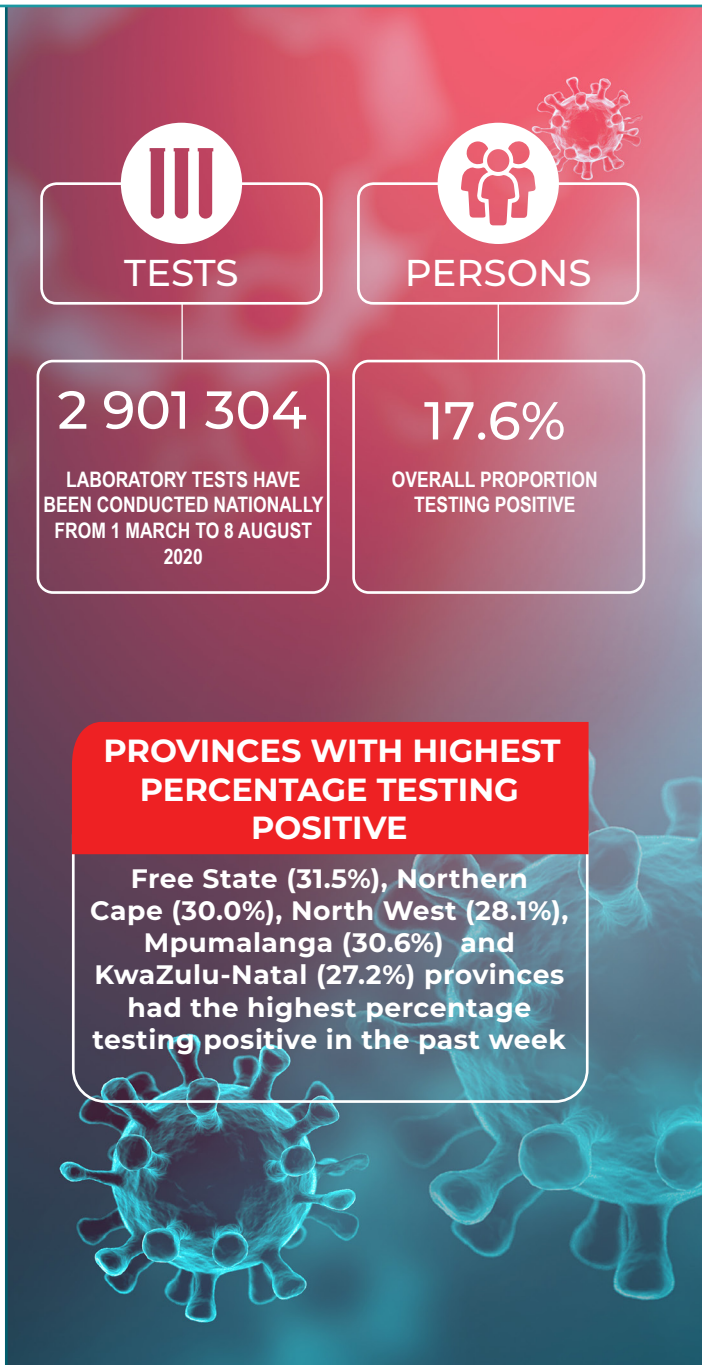
SOUTH AFRICA | WEEK 32 2020

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 reported up to 8 August 2020 (Week 32 of 2020).

Highlights

- In the period 1 March 2020 through 8 August 2020, 2 901 304 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 32.
- Free State province had the highest testing rate (441 per 100,000 persons) in week 32, and decreased testing rates were observed in all provinces.
- The percentage testing positive continued to decrease from 30.8% in week 30, to 29.0% in week 31 and to 25.0% in week 32.
- Free state (31.5%), Northern Cape (30.0%), Mpumalanga (30.6%), North West (28.1%) and KwaZulu-Natal (27.2%) provinces had the highest percentage testing positive in week 32.
- Compared to the previous week, Northern Cape was the only province where the percentage testing positive increased.
- The mean turnaround time in week 32 was 5.0 days in the public sector and 1.3 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 8 August 2020 (week 32).

TESTING VOLUMES AND PROPORTION TESTING POSITIVE

From 1 March through 8 August 2020, 2 901 304 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=271,112). Testing volumes have subsequently decreased since week 29, with 138 531 tests performed in week 32. 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).

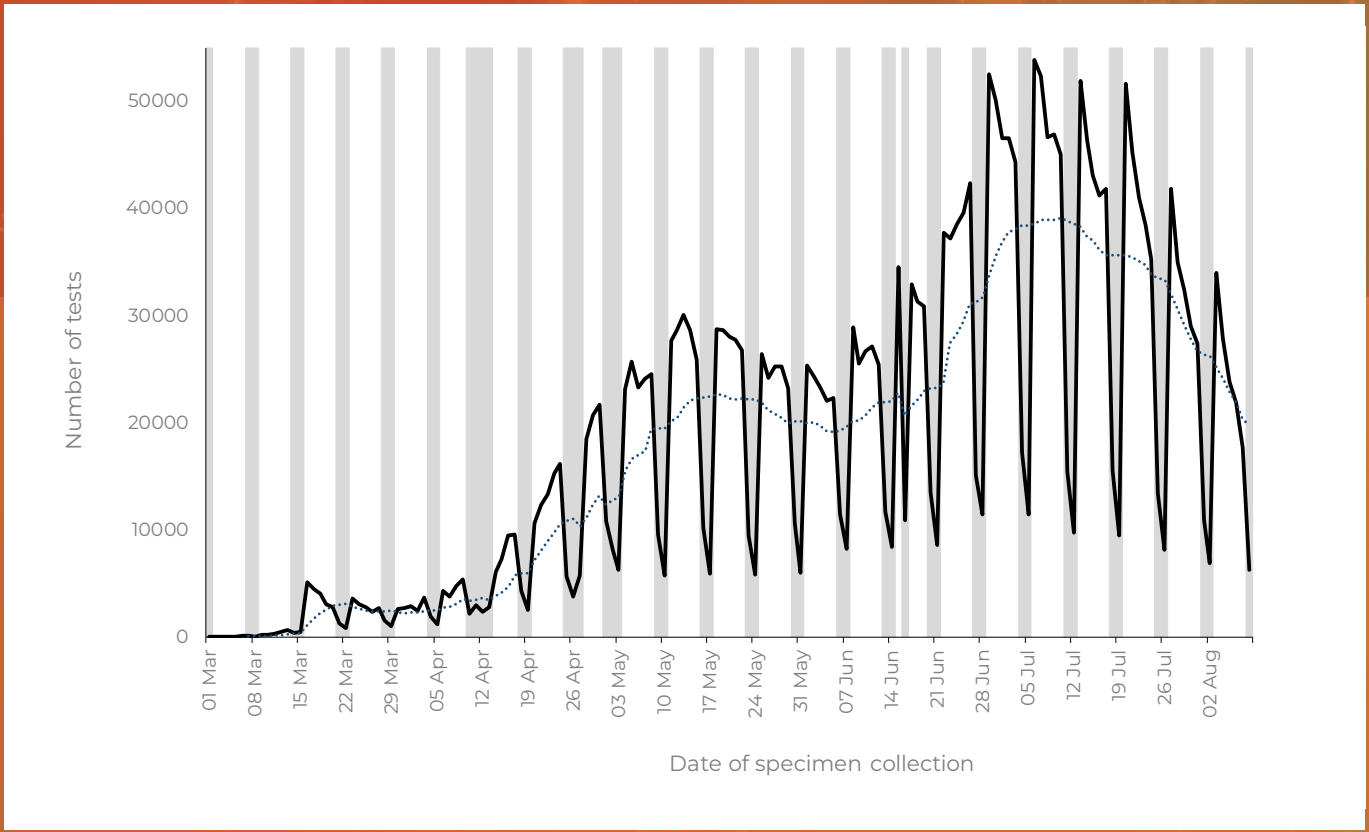


Figure 1. Number of laboratory tests conducted by date of specimen collection, South Africa, 1 March – 8 August 2020. Blue dotted line shows the 7-day moving average of the number of tests conducted. Grey bars highlight weekend days and public holidays.

The overall percentage testing positive from week 10 through 32 was 17.6% (Table 1). The percentage testing positive increased week on week from week 18 to a peak of 31.4% in week 29. Since week 30, there has been a 5.8 decrease in the percentage testing positive, from 30.8% in week 30 to 25.0% in week 32 (P<0.001) (Figure 2).

COVID-19 TESTING SUMMARY

WEEK 32 2020

Table 1. Weekly number of tests conducted and positive tests, South Africa, 1 March – 8 August 2020

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)
10	01-Mar	408 (0.0)	9	2.2
11	08-Mar	2 322 (0.1)	88	3.8
12	15-Mar	21 325 (0.7)	826	3.9
13	22-Mar	17 043 (0.6)	466	2.7
14	29-Mar	17 380 (0.6)	395	2.3
15	05-Apr	24 622 (0.8)	567	2.3
16	12-Apr	418 88 (1.4)	1 043	2.5
17	19-Apr	75 942 (2.6)	1 939	2.6
18	26-Apr	89 508 (3.1)	2 904	3.2
19	03-May	13 6948 (4.7)	5 557	4.1
20	10-May	156 985 (5.4)	7 387	4.7
21	17-May	155 620 (5.4)	10 551	6.8
22	24-May	141 058 (4.9)	11 695	8.3
23	31-May	135 027 (4.7)	13 513	10.0
24	07-Jun	153 850 (5.3)	20 466	13.3
25	14-Jun	162 697 (5.6)	29 803	18.3
26	21-Jun	219 401 (7.6)	50 295	22.9
27	28-Jun	269 018 (9.3)	69 498	25.8
28	05-Jul	272 112 (9.4)	79 894	29.4
29	12-Jul	249 994 (8.6)	78 587	31.4
30	19-Jul	234 792 (8.1)	72 276	30.8
31	26-Jul	184 833 (6.4)	53 686	29.0
32	02-Aug	138 531 (4.8)	34 664	25.0
Total		2 901 304 (100.0)	511 445	17.6

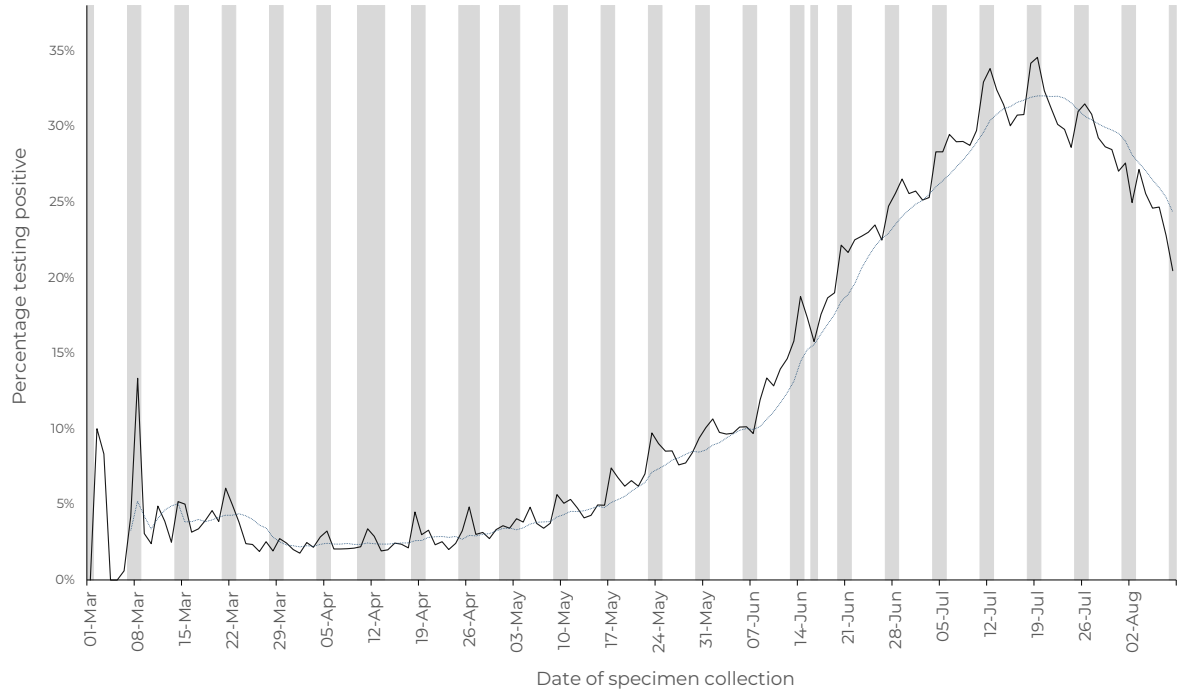


Figure 2. Percentage of laboratory tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March – 8 August 2020. Blue dotted line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

TESTING IN PRIVATE AND PUBLIC SECTORS

From 1 March through 8 August, 1 322 743 laboratory tests were conducted in public sector laboratories, with 16.5% testing positive. Over this same period, private sector laboratories conducted 1 578 561 tests, with 20.8% testing positive (Table 2). Overall the public sector has conducted 45.6% of tests and accounted for 39.9% 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 (25.3%) compared to the public sector (24.6%) (P=0.007).

The mean turnaround time has improved since week 29, and in week 32 was 3.2 days overall; 5.0 days in the public sector and 1.3 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 32 remained highest in KwaZulu-Natal (8.2 days) and was lowest in the Western Cape (1.4 days) and Eastern Cape (2.0 days) provinces. Decreases in turnaround time were observed in these five provinces (Figure 4). Of the 28 NHLS laboratories performing testing for SARS-CoV-2, 24 had improved turnaround times in week 32 compared to the previous week, although the large majority of public sector laboratories continued to have turnaround times >48 hours (Figure 5).

Table 2. Weekly number of tests conducted and positive tests, by healthcare sector, South Africa, 1 March – 8 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	251	5 (2.0)	157	4 (2.5)	61.5	55.6	0.782
11	08-Mar	349	12 (3.4)	1 973	76 (3.9)	15.0	13.6	0.893
12	15-Mar	1 345	51 (3.8)	19 980	775 (3.9)	6.3	6.2	0.978
13	22-Mar	3 359	123 (3.7)	13 684	343 (2.5)	19.7	26.4	1.461
14	29-Mar	5 613	159 (2.8)	11 767	236 (2.0)	32.3	40.3	1.412
15	05-Apr	11 349	319 (2.8)	13 273	248 (1.9)	46.1	56.3	1.504
16	12-Apr	23 790	608 (2.6)	18 098	435 (2.4)	56.8	58.3	1.063
17	19-Apr	54 207	1 481 (2.7)	21 735	458 (2.1)	71.4	76.4	1.297
18	26-Apr	66 259	2 295 (3.5)	2 3249	609 (2.6)	74.0	79.0	1.322
19	03-May	92 380	4 259 (4.6)	44 568	1 298 (2.9)	67.5	76.6	1.583
20	10-May	104 989	5 118 (4.9)	51 996	22 69 (4.4)	66.9	69.3	1.117
21	17-May	95 500	6 643 (7.0)	60120	3 908 (6.5)	61.4	63.0	1.070
22	24-May	74 319	5 965 (8.0)	66 739	5 730 (8.6)	52.7	51.0	0.935
23	31-May	60 311	6 122 (10.2)	74 716	7 391 (9.9)	44.7	45.3	1.026
24	07-Jun	60 063	7 376 (12.3)	93 787	13 090 (14.0)	39.0	36.0	0.880
25	14-Jun	56 032	11 109 (19.8)	106 665	18 694 (17.5)	34.4	37.3	1.131
26	21-Jun	82 748	18 918 (22.9)	136 653	31 377 (23.0)	37.7	37.6	0.996
27	28-Jun	97 481	25 211 (25.9)	171 537	44 287 (25.8)	36.2	36.3	1.002
28	05-Jul	107 895	30 297 (28.1)	16 4217	49 597 (30.2)	39.7	37.9	0.930
29	12-Jul	10 1137	29 374 (29.0)	148 857	49 213 (33.1)	40.5	37.4	0.879
30	19-Jul	94 785	27 931 (29.5)	140 007	44 345 (31.7)	40.4	38.6	0.930
31	26-Jul	73 328	21 077 (28.7)	111 505	32 609 (29.2)	39.7	39.3	0.983
32	02-Aug	5 5253	13 614 (24.6)	83 278	2 1050 (25.3)	39.9	39.3	0.975
Total		**1 322 743**	**218 067 (16.5)**	**1 578 561**	**328042 (20.8)**	**45.6**	**39.9**	**0.793**

[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)

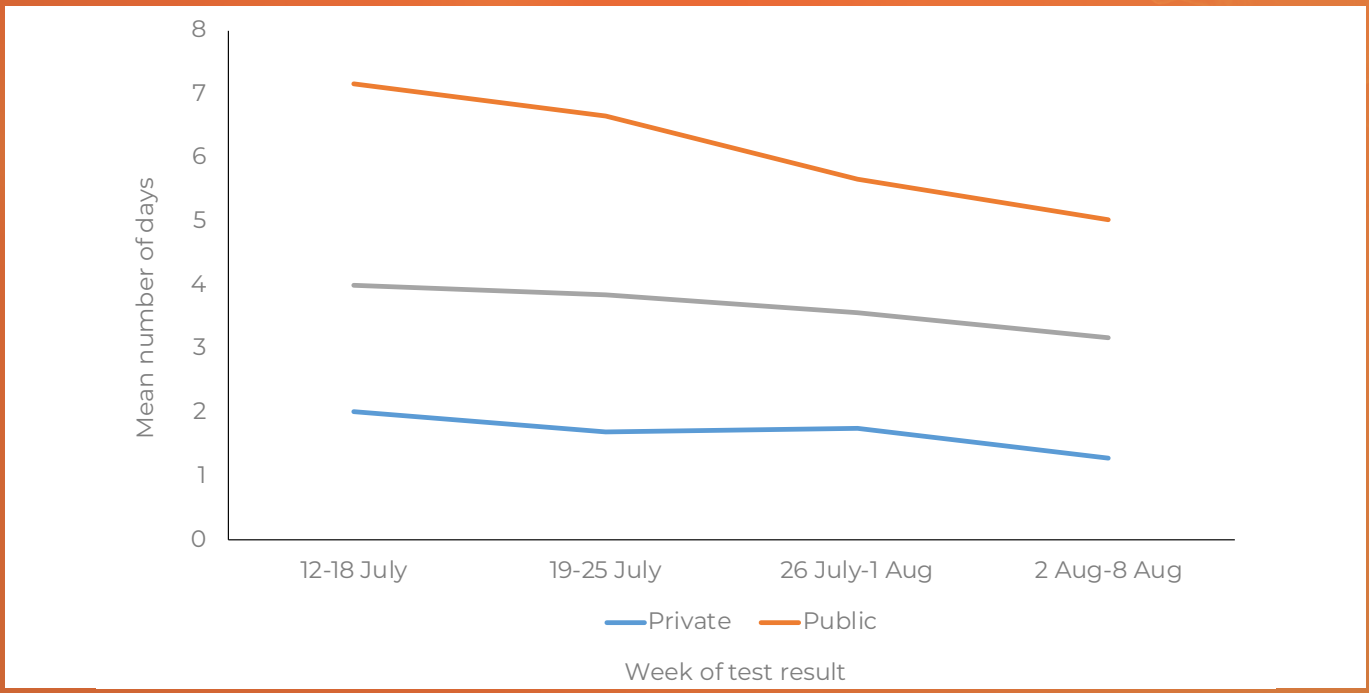


Figure 3. Mean number of days between date of specimen collection and date of test result, by week of test result, South Africa, 12 July – 8 August 2020

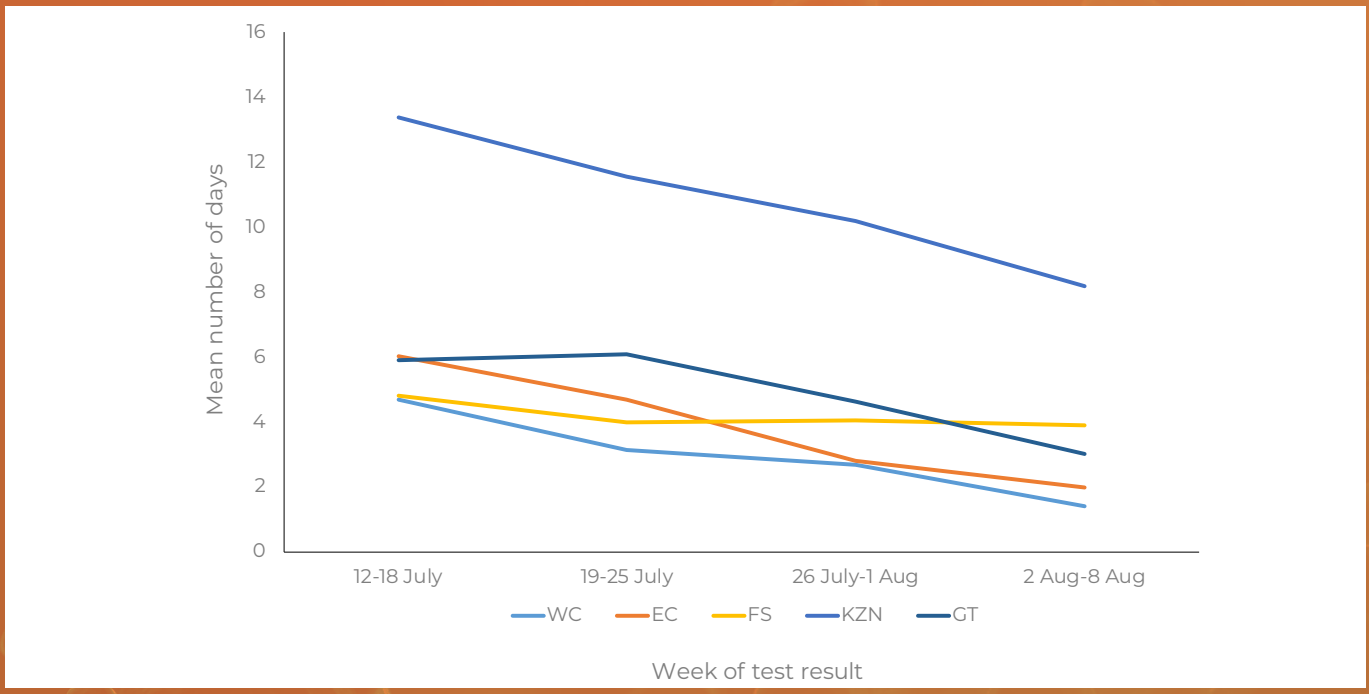


Figure 4. Mean number of days between date of specimen collection and date of test result, by week of test result and province, South Africa, 12 July – 8 August 2020. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal, GT, Gauteng

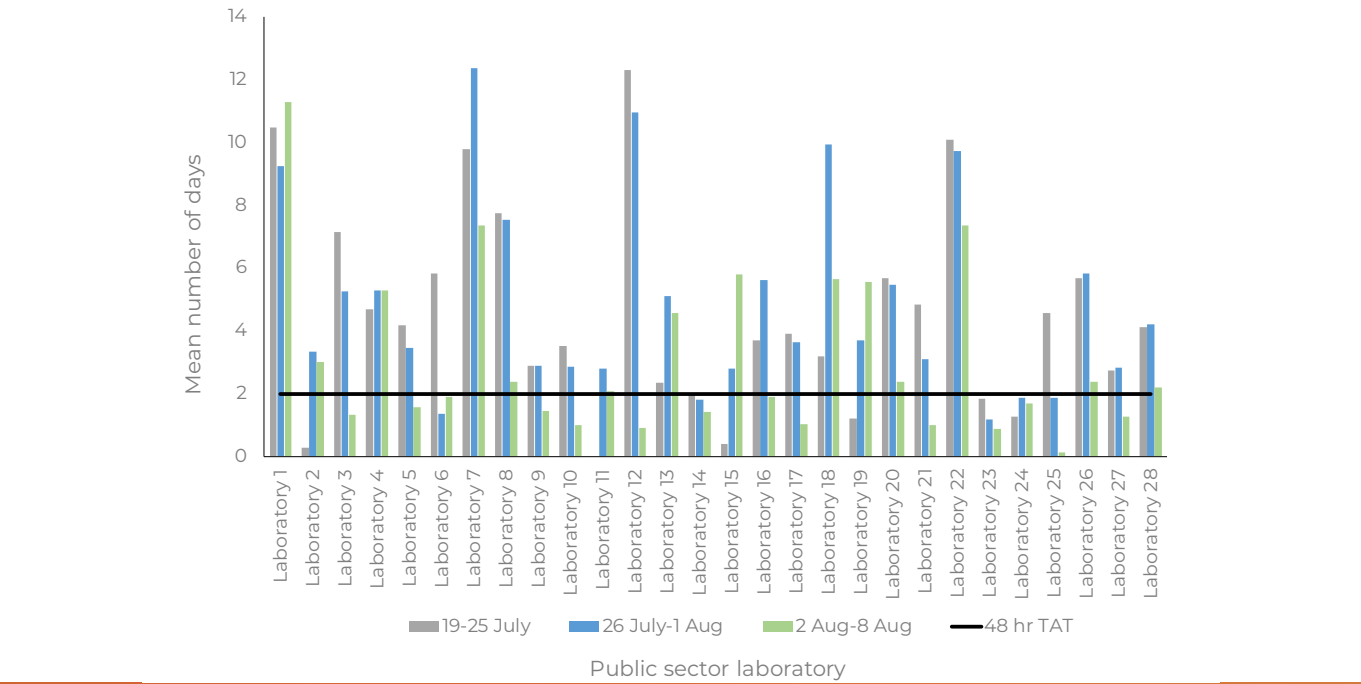


Figure 5. Mean number of days between date of specimen collection and date of test result, by public sector laboratory, 19 July - 8 August 2020. The horizontal black line indicates 48-hour turnaround time (TAT).

TESTING BY PROVINCE

Gauteng continued to perform the largest number of tests in week 32 accounting for 30.9% of tests, followed by KwaZulu-Natal, which accounted for 23.0% 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 32, with Free State having the highest testing rate (441 per 100,000 persons) (Figure 6). Compared to the previous week, Northern Cape was the only province with an increased testing rate.

Free state (31.5%), Northern Cape (30.0%), Mpumalanga (30.6%), North West (28.1%) and KwaZulu-Natal (27.2%) provinces had the highest percentage testing positive in week 32 (Figure 7). Compared to the previous week, the percentage testing positive increased significantly in Northern Cape province (P<0.001), and decreased in 7 provinces (Western Cape (P<0.001), Eastern Cape (P<0.001), KwaZulu-Natal (P<0.001), and Gauteng (P<0.001), Free State (P=0.001), Mpumalanga (P<0.001) and North West (P<0.001)). The percentage testing positive was higher than the national average, not weighted for population size, in the Northern Cape, Free State, KwaZulu-Natal, North West and Mpumalanga provinces (Figure 7).

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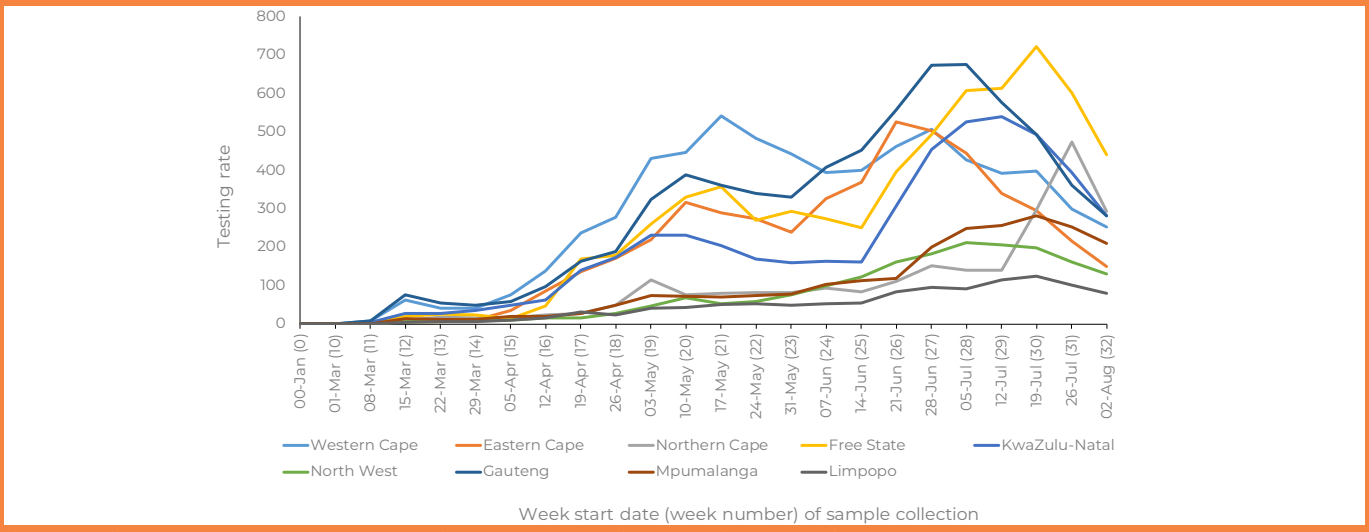

Figure 6. Testing rate rate per 100,000 persons by province and week of specimen collection, South Africa, 1 March – 8 August 2020.

Table 3. Weekly number of tests performed and positive tests, by province, South Africa, 19 July-8 August 2020

		19-25 July		26 July - 1 Aug		2-8 Aug		
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	27 255	6 306 (23.1)	20 481	4 160 (20.3)	17 262	2 907 (16.8)	252
Eastern Cape	6 712 276	19 777	6705 (33.9)	14 463	4 267 (29.5)	10 067	2 317 (23.0)	150
Northern Cape	1 263 875	3 761	945 (25.1)	5 978	1 388 (23.2)	3 716	1 113 (30.0)	294
Free State	2 887 465	20 836	6 676 (32.0)	17 344	5 776 (33.3)	12 731	4 009 (31.5)	441
KwaZulu-Natal	11 289 086	55 548	1 8541 (33.4)	44 445	13 818 (31.1)	31 869	8 670 (27.2)	282
North West	4 027 160	8 010	2 675 (33.4)	6 511	2 213 (34.0)	5 255	1 475 (28.1)	130
Gauteng	15 176 115	74 934	23 186 (30.9)	54 901	15 846 (28.9)	42 757	10 142 (23.7)	282
Mpumalanga	4 592 187	12 950	4 505 (34.8)	11 632	4 031 (34.7)	9 592	2 939 (30.6)	209
Limpopo	5 982 584	7 455	1 623 (21.8)	6 040	1 320 (21.9)	4 810	1 009 (21.0)	80
Unknown		4 266	1 114 (26.1)	3 038	867 (28.5)	472	83 (17.6)	
Total	**58 750 220**	**23 4792**	**72 276 (30.8)**	**184 833**	**53 686 (29.0)**	**138 531**	**34 664 (25.0)**	**236**

[a]2019 Mid-year population Statistics SA

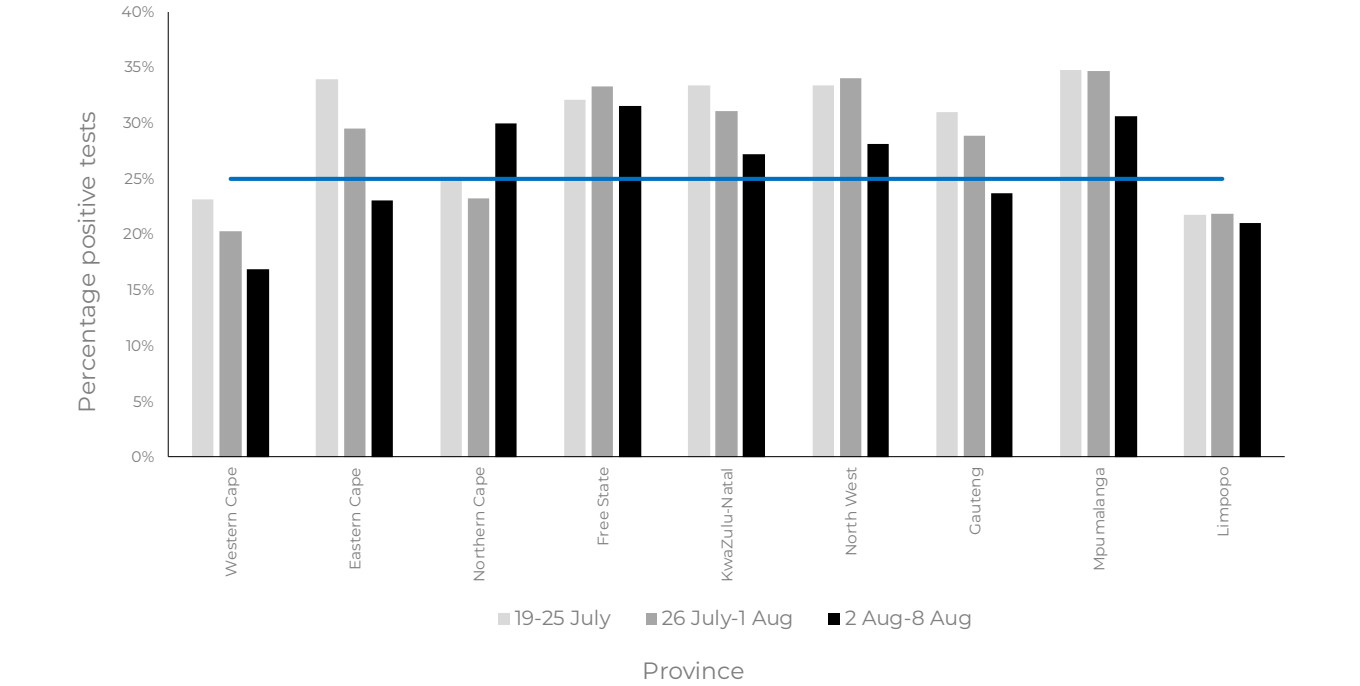

Figure 7. Weekly percentage testing positive, by province, South Africa, 19 July-8 August 2020. The horizontal blue line shows the national mean for week 32, beginning 2 August 2020.

TESTING IN THE PUBLIC SECTOR

In the public sector, the percentage testing positive continued to decrease from 28.7% in week 31 to 24.6% in week 32 (P<0.001) (Table 4). The percentage testing positive in week 32 was highest in North West (32.0%), Mpumalanga (29.8%) Northern Cape (28.2%) and KwaZulu-Natal (28.2%) provinces. The percentage testing positive in the public sector remains higher than the national average, not weighted for population size, in the, Free State, KwaZulu-Natal, North West and Mpumalanga provinces, and increased for the first time beyond the national average in Northern Cape (Figure 8).

Table 4. Weekly number of tests conducted and positive tests in the public sector, by province, South Africa, 19 July-8 August 2020

	19-25 July		26 July-1 Aug		2-8 Aug	
Province	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	13 809	3 237 (23.4)	8 768	1 959 (22.3)	7 276	1 375 (18.9)
Eastern Cape	11 983	3 840 (32.0)	9 265	2 669 (28.8)	6 400	1 433 (22.4)
Northern Cape	1 122	161 (14.3)	3 402	700 (20.6)	1 483	418 (28.2)

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Free State	11 769	3 319 (28.2)	8 997	2 664 (29.6)	6 093	1 678 (27.5)
KwaZulu-Natal	2 2147	7 383 (33.3)	16 569	5 603 (33.8)	13 200	3 718 (28.2)
North West	1 883	646 (34.3)	1 722	685 (39.8)	1 452	465 (32.0)
Gauteng	25 759	7 456 (28.9)	19 088	5 081 (26.6)	14 849	3390 (22.8)
Mpumalanga	2 903	1 178 (40.6)	2 981	1 158 (38.8)	2 444	728 (29.8)
Limpopo	3 410	711 (20.9)	2 536	558 (22.0)	2 054	408 (19.9)
Unknown	0	0 (0.0)	0	0 (0.0)	2	1 (50.0)
Total	94 785	27 931 (29.5)	73 328	21 077 (28.7)	55 253	13 614 (24.6)

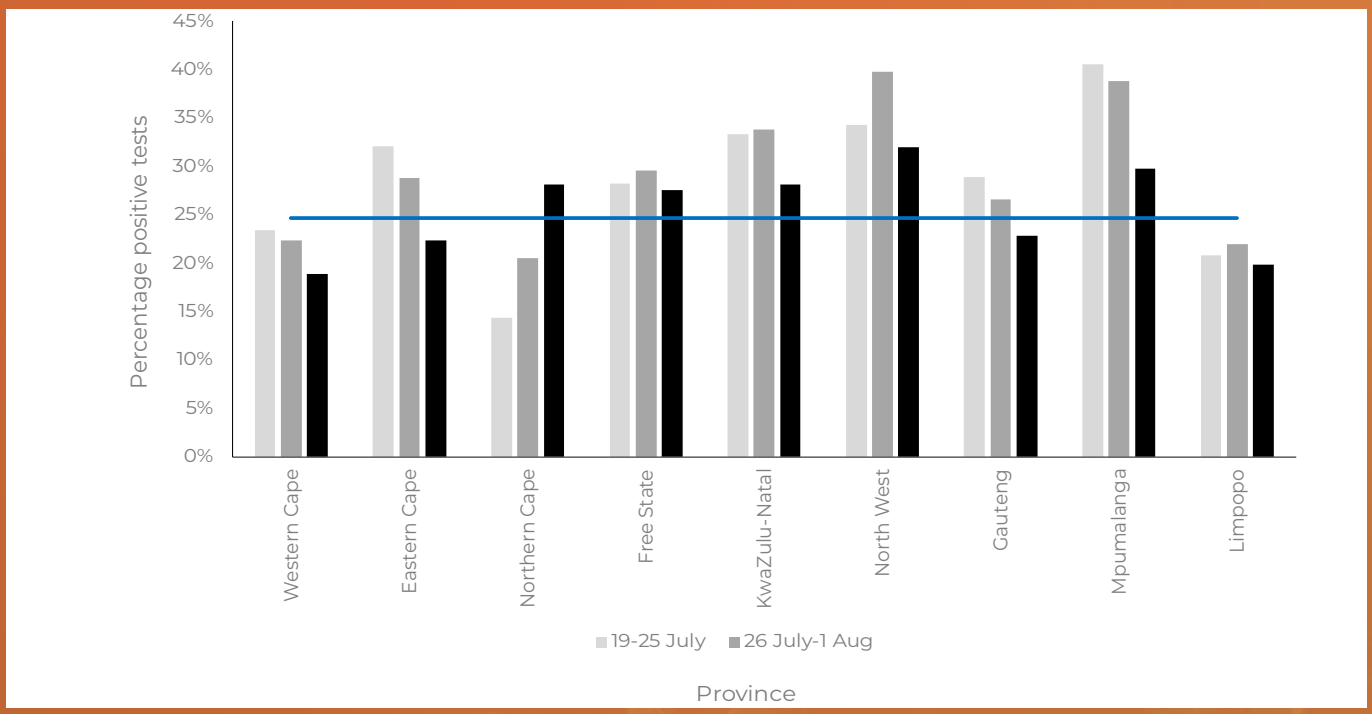

Figure 8. Weekly percentage testing positive in the public sector, by province, South Africa, 19 July-8 August 2020. The horizontal blue line shows the national mean for week 32, beginning 2 August 2020

PUBLIC FACILITIES WITH HIGH PROPORTIONS TESTING POSITIVE

Table 5 shows the 25 public clinics, hospitals and testing laboratories (where specimens were not tied to a particular facility) with the highest PTP nationally. A total of 468 facilities had 25 or more specimens tested, and at least five positive results, in the 2 to 8 August period. In recent weeks, the number of such facilities has increased dramatically.

While 4 facilities in the top 25 ranked by proportion testing positive now show proportions less than 50%, there continues to be a marked spatial shift in the distribution of these facilities from mainly Gauteng and Western Cape earlier in the pandemic to now also include other provinces. Seven are in Gauteng, 5 in KwaZulu-Natal, and 4 in the Northern Cape. Only the Free State and Limpopo are not represented in the list. The three facilities with the highest proportions testing positive are all in the Northern Cape.

Table 5. Public healthcare facilities with a high proportion testing positive, 2 August-8 August 2020

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Northern Cape	26	0.923 (0.821;1.000)
Facility 2	Northern Cape	30	0.767 (0.615;0.918)
Facility 3	Northern Cape	29	0.724 (0.561;0.887)
Facility 4	Eastern Cape	49	0.694 (0.565;0.823)
Facility 5	Gauteng	115	0.643 (0.556;0.731)
Facility 6	KwaZulu-Natal	30	0.633 (0.461;0.806)
Facility 7	Gauteng	98	0.622 (0.526;0.718)
Facility 8	Gauteng	50	0.600 (0.464;0.736)
Facility 9	Mpumalanga	50	0.580 (0.443;0.717)
Facility 10	Gauteng	26	0.577 (0.387;0.767)
Facility 11	KwaZulu-Natal	33	0.576 (0.407;0.744)
Facility 12	Western Cape	28	0.571 (0.388;0.755)
Facility 13	Mpumalanga	25	0.560 (0.365;0.755)
Facility 14	North West	27	0.556 (0.368;0.743)
Facility 15	Gauteng	38	0.526 (0.368;0.685)
Facility 16	KwaZulu-Natal	50	0.520 (0.382;0.658)
Facility 17	Eastern Cape	31	0.516 (0.340;0.692)

Facility 18	North West	69	0.507 (0.389;0.625)
Facility 19	KwaZulu-Natal	34	0.500 (0.332;0.668)
Facility 20	North West	38	0.500 (0.341;0.659)
Facility 21	Gauteng	70	0.486 (0.369;0.603)
Facility 22	Gauteng	33	0.485 (0.314;0.655)
Facility 23	KwaZulu-Natal	38	0.474 (0.315;0.632)
Facility 24	Northern Cape	91	0.473 (0.370;0.575)
Facility 25	Free State	34	0.471 (0.303;0.638)

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

PUBLIC SECTOR TESTING: HEALTH DISTRICT-LEVEL RESULTS

The data from public testing activities in the week from 2-8 August, from public facilities 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 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 results, for the 25 municipalities and metropolitan health sub-districts showing the greatest proportions testing positive (PTP) are shown in Table 6.

The shifting geocentre of the outbreak is indicated by the increasing dominance of districts in the Northern Cape, Mpumalanga, the North West and KwaZulu-Natal in this list. None of the Cape Town sub districts remain on the list below, and only one from the Western Cape.

Table 6. Health sub-districts with the highest proportion testing positive based on public sector data for the week of 2 August-8 August 2020

Health district or sub-district	Province	PTP (95% CI)	Previous week
Ga-Segonyana	Northern Cape	0.554 (0.476-0.633)	0.448 (0.393-0.502)
Merafong City	Gauteng	0.488 (0.369-0.607)	0.543 (0.449-0.637)
Mohokare	Free State	0.449 (0.313-0.586)	0.243 (0.134-0.351)
Govan Mbeki	Mpumalanga	0.438 (0.342-0.534)	0.552 (0.468-0.637)
Tsantsabane	Northern Cape	0.434 (0.346-0.522)	0.193 (0.151-0.236)

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Tlokwe City Council	North West	0.424 (0.336-0.512)	0.443 (0.365-0.521)
City of Matlosana	North West	0.420 (0.374-0.467)	0.430 (0.384-0.476)
Ekurhuleni East 2	Gauteng	0.411 (0.355-0.467)	0.429 (0.379-0.480)
Letsemeng	Free State	0.404 (0.282-0.526)	0.310 (0.218-0.403)
Lesedi	Gauteng	0.404 (0.289-0.520)	0.271 (0.215-0.327)
eThekwini West	KwaZulu-Natal	0.393 (0.345-0.441)	0.435 (0.392-0.479)
Bitou	Western Cape	0.384 (0.280-0.489)	0.287 (0.204-0.370)
Msukaligwa	Mpumalanga	0.378 (0.308-0.448)	0.406 (0.330-0.481)
eThekwini North	KwaZulu-Natal	0.366 (0.333-0.399)	0.360 (0.333-0.388)
Oudtshoorn	Western Cape	0.364 (0.306-0.422)	0.261 (0.214-0.309)
Emakhazeni	Mpumalanga	0.363 (0.223-0.504)	0.412 (0.293-0.531)
Makana	Eastern Cape	0.359 (0.264-0.455)	0.362 (0.277-0.446)
Emalahleni	Mpumalanga	0.358 (0.275-0.441)	0.331 (0.226-0.436)
Tshwane 7	Gauteng	0.354 (0.274-0.434)	0.259 (0.198-0.320)
Mafikeng	North West	0.354 (0.291-0.417)	0.355 (0.305-0.405)
Newcastle	KwaZulu-Natal	0.352 (0.317-0.387)	0.435 (0.401-0.470)
Ekurhuleni East 1	Gauteng	0.352 (0.295-0.409)	0.439 (0.389-0.489)
Mthonjaneni	KwaZulu-Natal	0.350 (0.287-0.412)	0.178 (0.141-0.215)
Ndlambe	Eastern Cape	0.345 (0.239-0.451)	0.433 (0.359-0.506)
Pixley Ka Seme	Mpumalanga	0.344 (0.290-0.399)	0.316 (0.267-0.364)

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.

The data 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) for the current week is presented graphically below.

The spatial pattern of adjusted proportions testing positive in public facilities by health district and sub-district is shown in the four maps that follow the figure; for South Africa; and for the four currently most affected provinces: The Western Cape, the Eastern Cape, KwaZulu-Natal and Gauteng.

COVID-19 TESTING SUMMARY

WEEK 32 2020

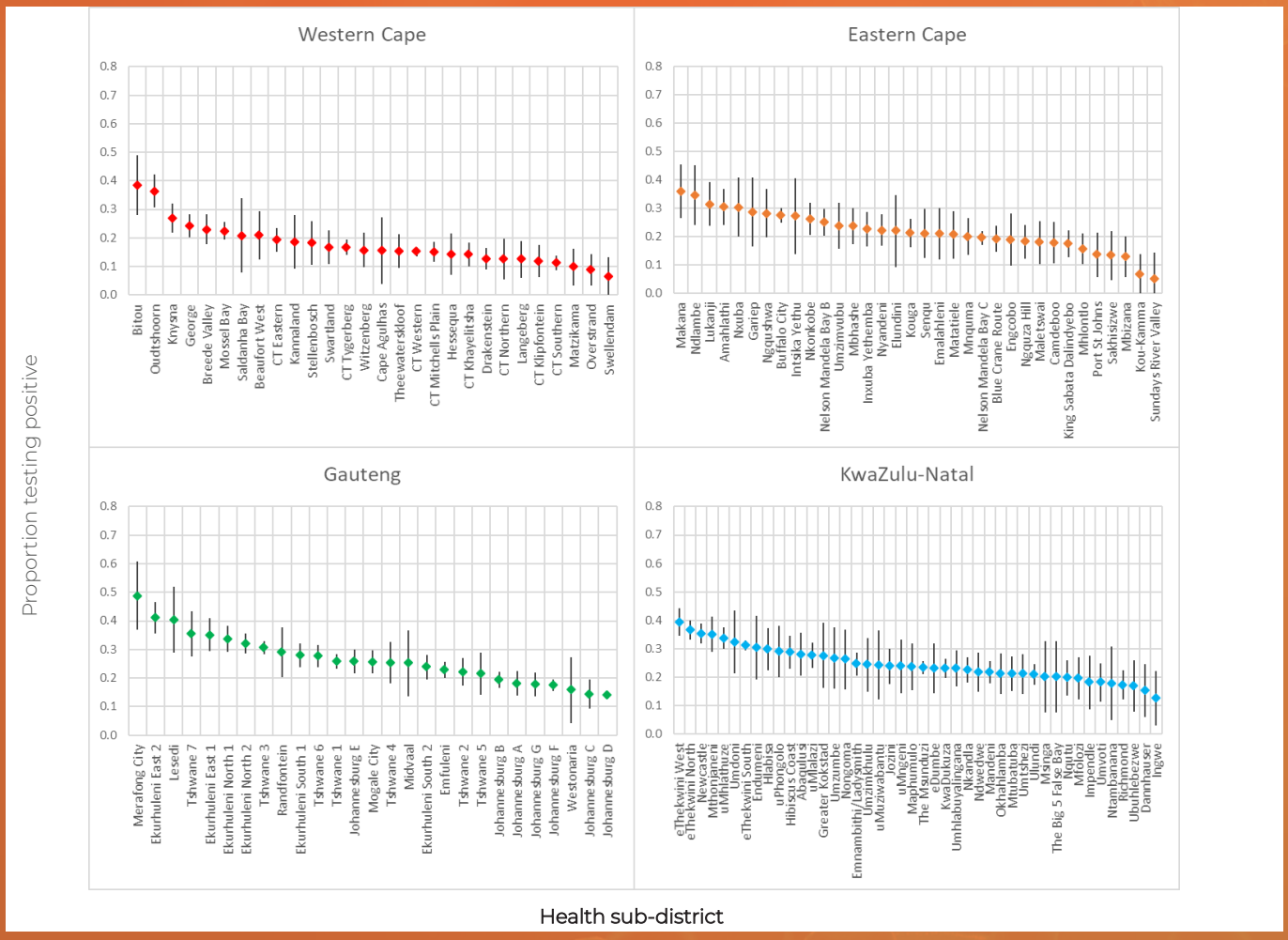

Figure 9. Proportions testing positive by health sub-districts in Western Cape, Eastern Cape, Gauteng, KwaZulu-Natal, North West, Free State, Limpopo, Mpumalanga and Northern Cape provinces based on public sector data for the week of 2 August-8 August 2020.

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 2 August-8 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), KwaZulu-Natal (Figure 12), and Gauteng (Figure 13).

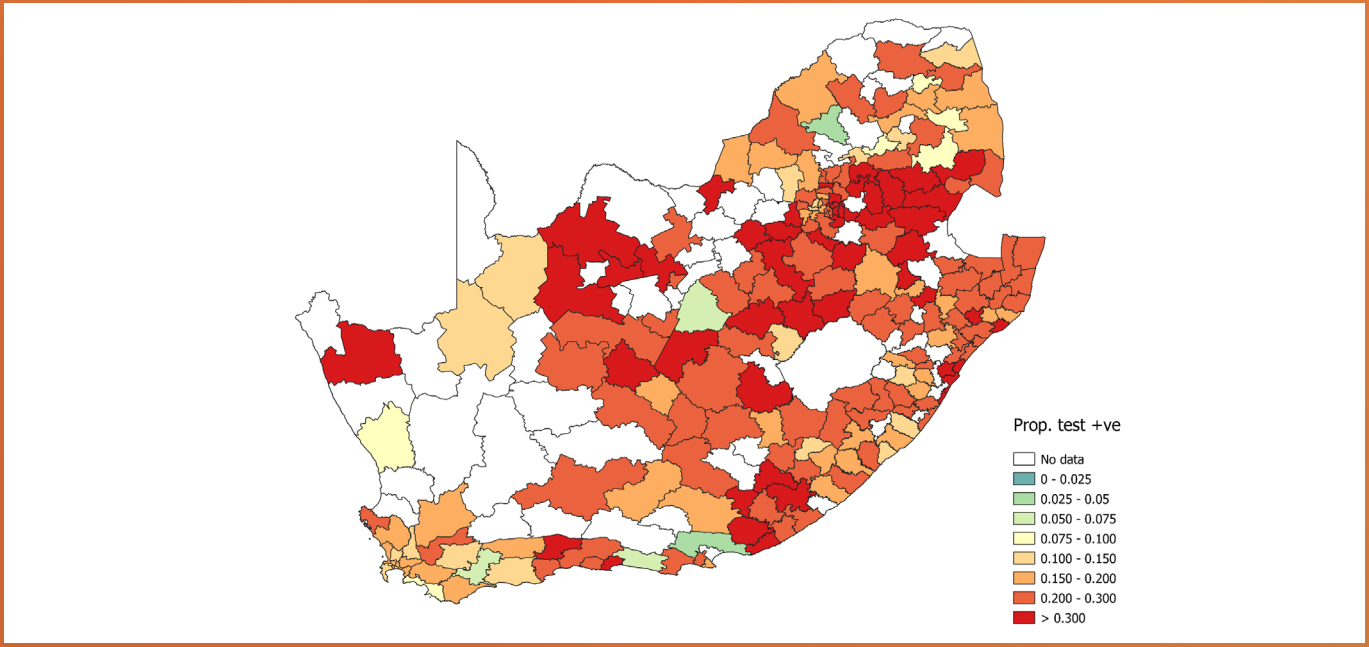

Figure 10. Proportion testing positive by health sub-district based on public sector data for the week of 2 August – 8 August 2020, South Africa. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

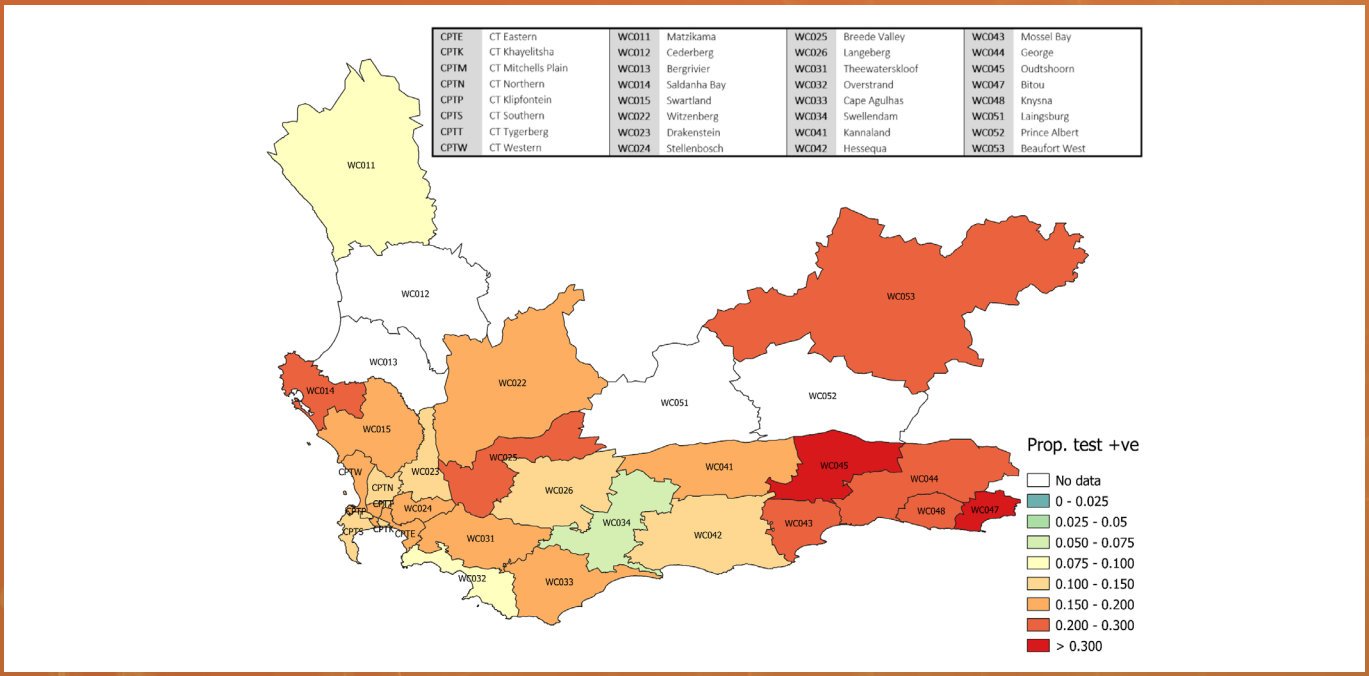

Figure 11. Health sub-districts in the Western Cape province with a high proportion testing positive based on public sector data for the week of 2 August-8 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%

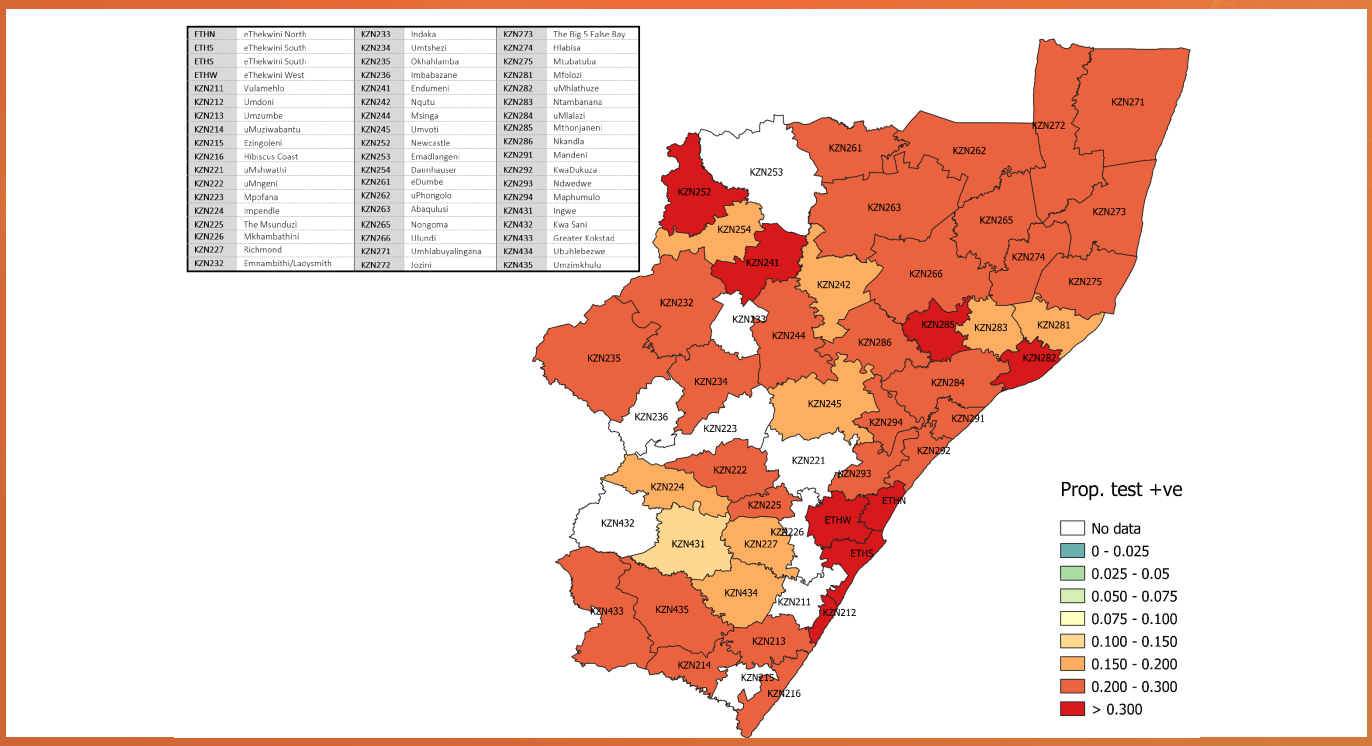

Figure 12. Health sub-districts in the KwaZulu-Natal province with a high proportion testing positive based on public sector data for the week of 2 August-8 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

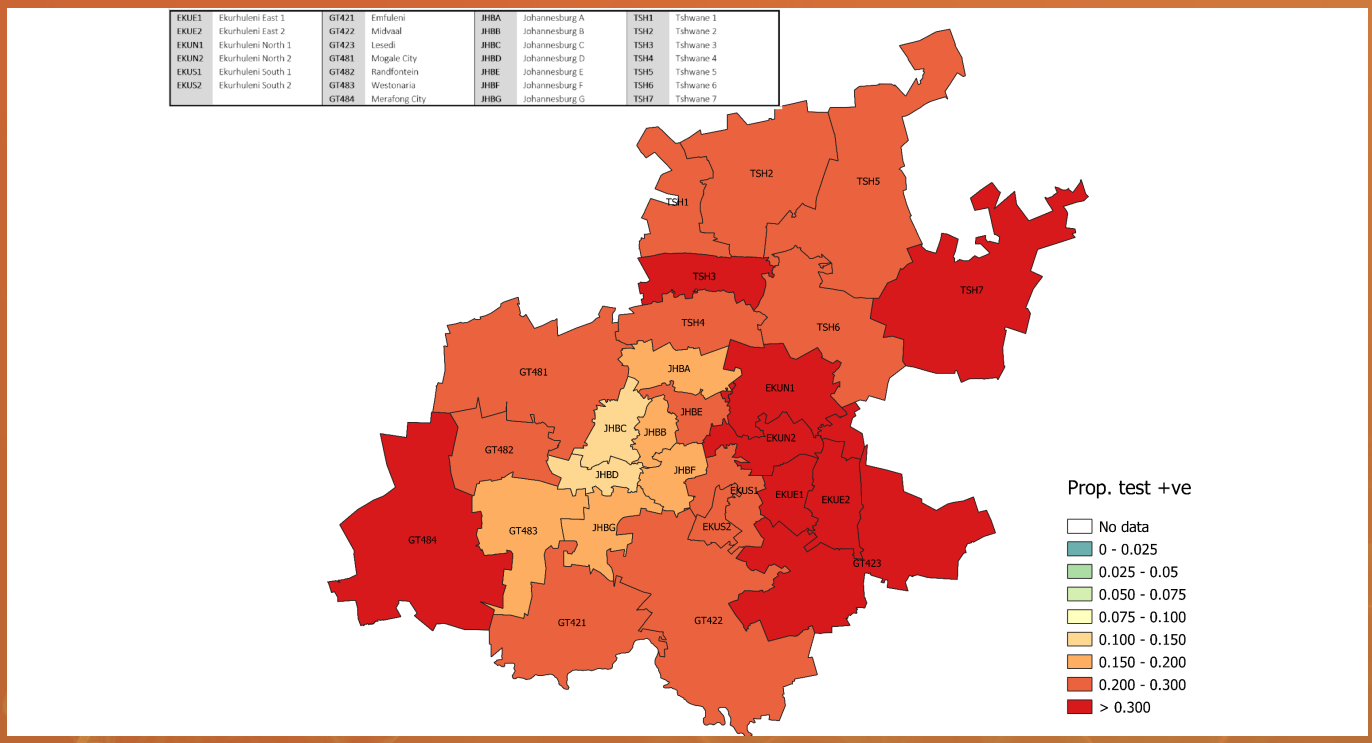

Figure 13. Health sub-districts in Gauteng Province with a high proportion testing positive based on public sector data for the week of 2 August-8 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

TESTING BY PATIENT ADMISSION STATUS

In week 32, 25.0% 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 32 (Western Cape, Eastern Cape, Free State, KwaZulu-Natal and Gauteng), the proportion of inpatient tests was highest in KwaZulu-Natal (33.3%). In the past week, the percentage of inpatient tests increased in these five provinces. The percentage testing positive in week 32 was similar among inpatients (24.1%) and outpatients (24.9%), with the percentage among inpatients continuing to decrease from the previous weeks (30.8% in week 31 and 33.2% in week 30). In the public sector in week 32 the mean laboratory turnaround time was similar for inpatients (4.6 days) and outpatients (5.4 days), with a reduction in turnaround time for outpatient tests observed in the past week.

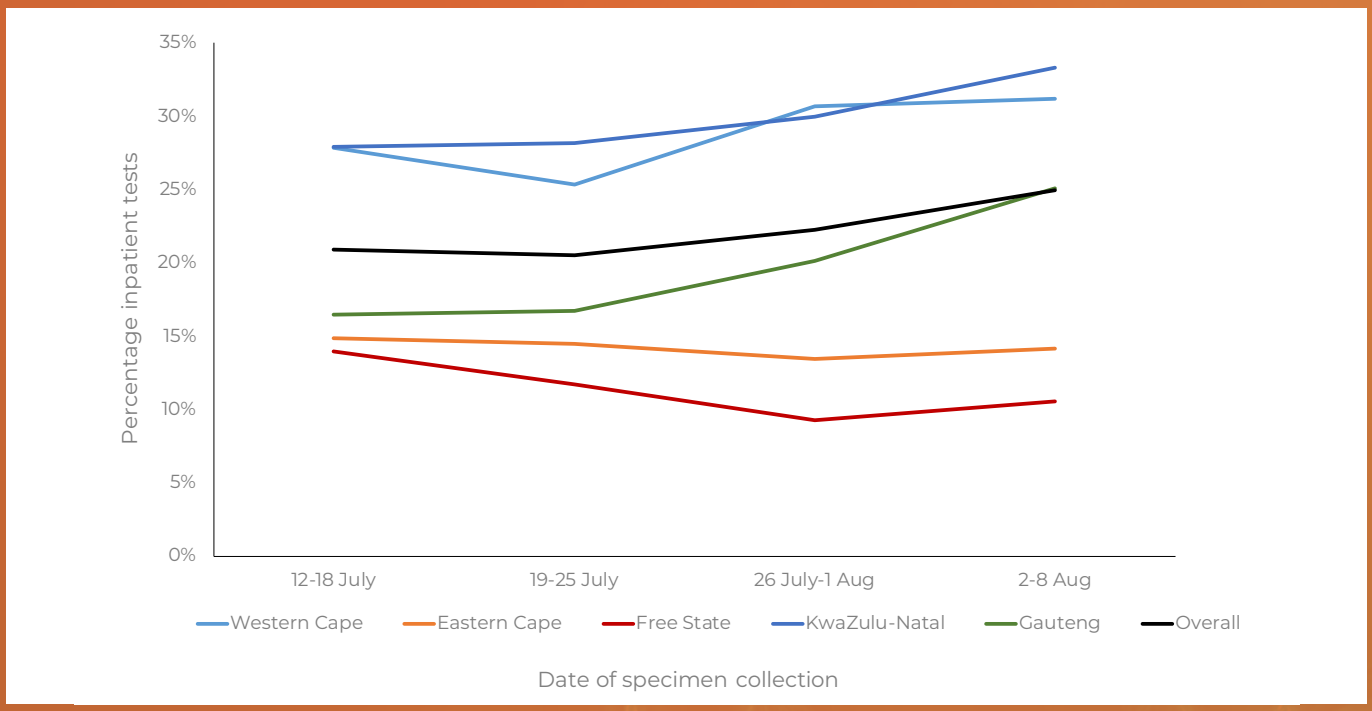

Figure 14. Percentage of inpatient tests performed in the public sector by province, 12 July-8 August 2020

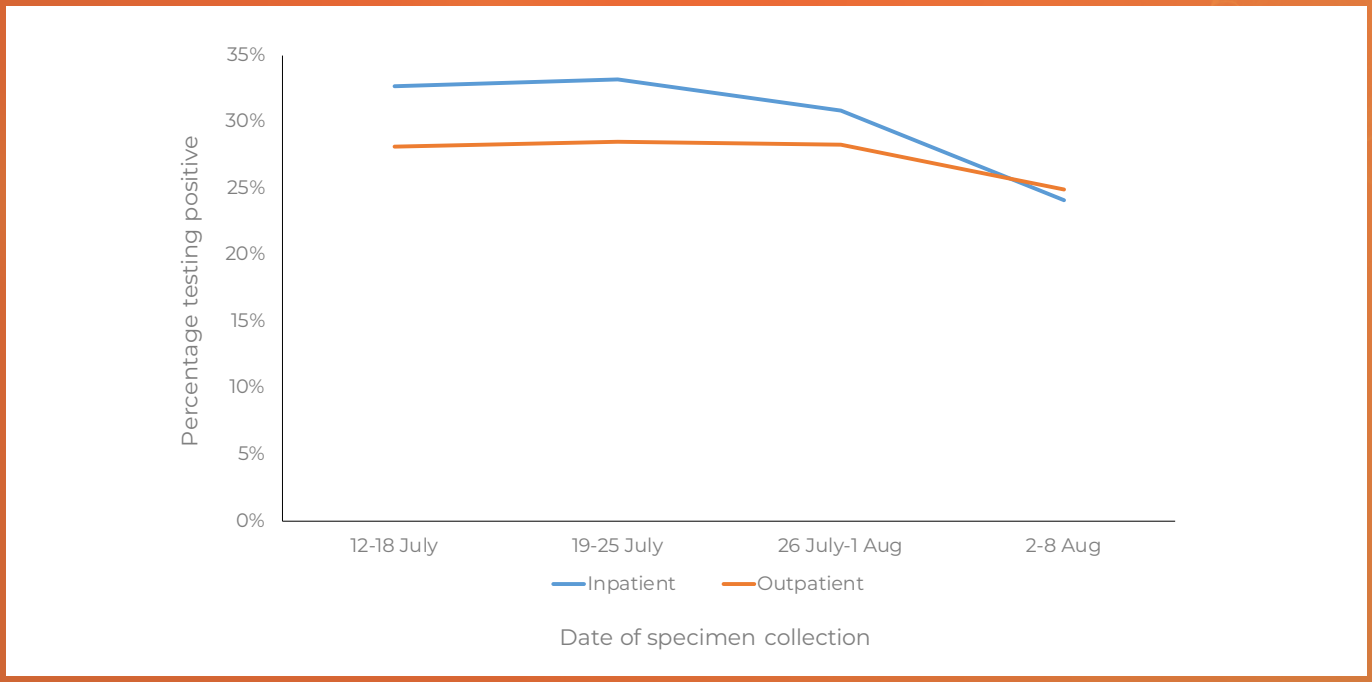

Figure 15. Percentage testing positive by patient admission status in the public sector, 5 July-1 August 2020

Figure 16. Mean number 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, 12 July-8 August 2020

TESTING BY AGE AND SEX

The mean age of individuals tested in week 32 was 39.9 years. The mean age of individuals with a positive test in week 32 (42.2 years) was similar to 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 70.4 in week 32. 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 32 was lower than the previous two weeks for all age groups.

Table 7. Mean age and sex ratio of individuals tested, South Africa, 12 July-8 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
29	12 July	38.4	38.8	40.9	40.7	74.4	70.2
30	19 July	39.0	39.4	41.5	41.2	73.2	69.7
31	26 July	39.7	40.1	42.4	42.3	77.4	71.1
32	2 August	39.8	40.1	42.7	42.2	78.2	70.4

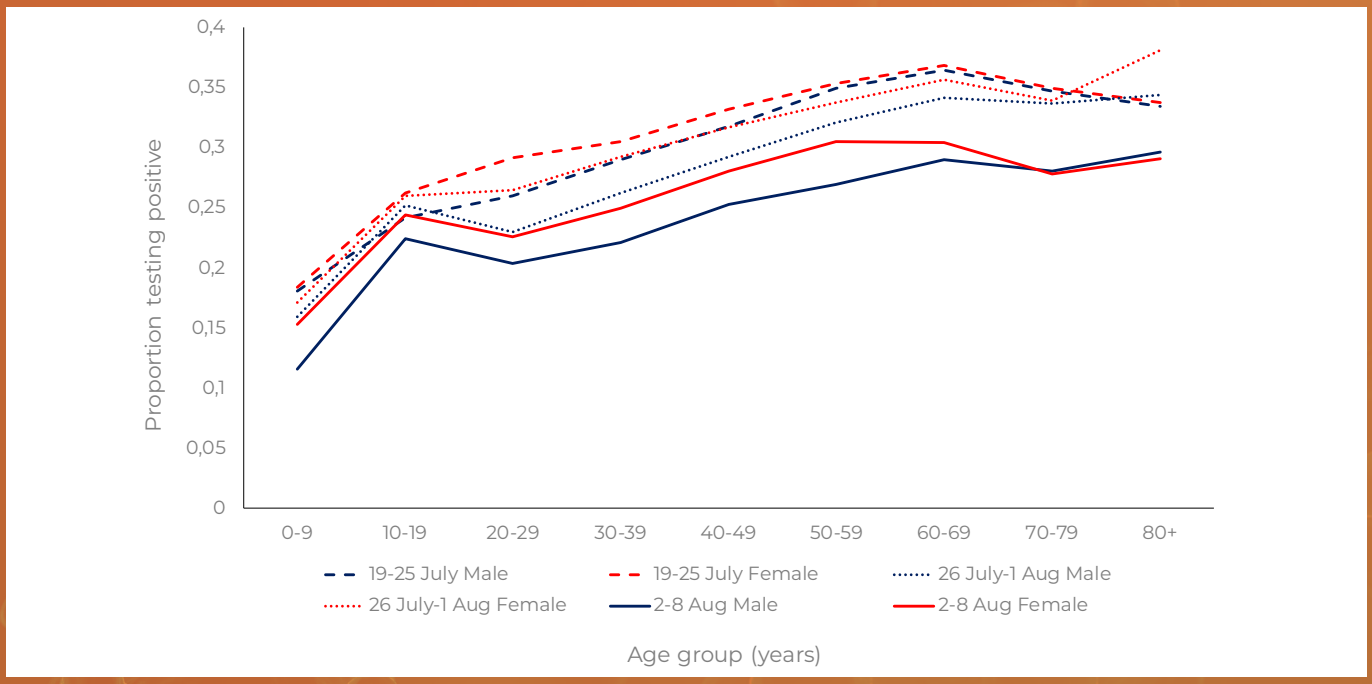

Figure 17. Weekly proportion testing positive by age group and sex, South Africa, 19 July-8 August 2020

From week 29 to week 32, the percentage testing positive decreased from 30.4% to 23.6% in males (P<0.001) and from 32.2% to 26.2% in females (P<0.001) (Table 8). In week 32 the percentage testing positive was higher in females compared to males in the 0-19 (P>0.001), 20-39 years (P<0.001) and 40-59 years (P<0.001) age groups.

Table 8. Percentage testing positive by sex and week, South Africa, 12 July-8 August 2020

Age (years)	12-18 July		19-25 July		26 July-1 Aug		2-8 August	
	Male	Female	Male	Female	Male	Female	Male	Female
0-19	21.6%	23.8%	22.0%	23.9%	21.2%	22.8%	17.5%	21.0%
20-39	29.0%	31.3%	27.8%	30.0%	25.0%	28.1%	21.4%	24.0%
40-59	33.5%	34.7%	33.2%	34.1%	30.5%	32.6%	26.0%	29.2%
60-69	37.1%	37.7%	36.5%	36.8%	34.1%	35.6%	29.1%	30.5%
70+	35.2%	36.7%	34.4%	34.5%	33.9%	35.6%	28.5%	28.3%
Total	30.4%	32.2%	29.9%	31.4%	27.6%	30.1%	23.6%	26.2%

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 since week 28, with 60% of tests done in week 28-32 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 (441 per 100,000 persons) in week 32, and decreased testing rates were observed in all provinces. The percentage testing positive decreased from 30.8% in week 30, to 29.0% in week 31 and to 25.0% in week 32. Free state (31.5%), Northern Cape (30.0%), Mpumalanga (30.6%), North West (28.1%) and KwaZulu-Natal (27.2%) provinces had the highest percentage testing positive in week 32. Compared to the previous week, Northern Cape was the only province where the percentage testing positive increased. Percentage testing positive increased with increasing age, ranging from 19.3% in the 0-19 years' age group to 29.8% in 60-69 years' age group in week 32. Laboratory turnaround times improved in the past week (1.3 days in the private sector and 5.0 days in the public sector).