

COVID-19 TESTING SUMMARY



NATIONAL INSTITUTE FOR
COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 26 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 collected up to 27 June 2020 (week 26 of 2020). Note: COVID-19 is the name of the disease and SARS-CoV-2 is the name of the virus.

Highlights

- In the period 1 March 2020 through 27 June 2020, 1 456 446 laboratory tests for SARS-CoV-2 have been conducted nationally
- Gauteng contributed to 40% of tests conducted in week 26
- Overall percentage testing positive was 9.6%, however, there continued to be an increase in the weekly percentage testing positive since week 15 to 23% in week 26 (21-27 June)
- Percentage testing positive in week 26 was 23% in both the public and private sector
- Eastern Cape (32.6%) and Western Cape (29.3%) provinces continued to have the highest percentage testing positive in the past week, however Gauteng, North West and KwaZulu-Natal provinces additionally had percentage testing positive of >15%
- Following new testing strategies, testing volumes in Western Cape have been decreasing since week 21, associated with improved turnaround times from 5.4 days in week 24 to 1.6 days in week 26
- The mean turnaround time in the public sector improved from 6 days to 5 days in the past week



TESTS

1 456 446

LABORATORY TESTS HAVE
BEEN CONDUCTED NATIONALLY
FROM 1 MARCH TO 27 JUNE 2020



PERSONS

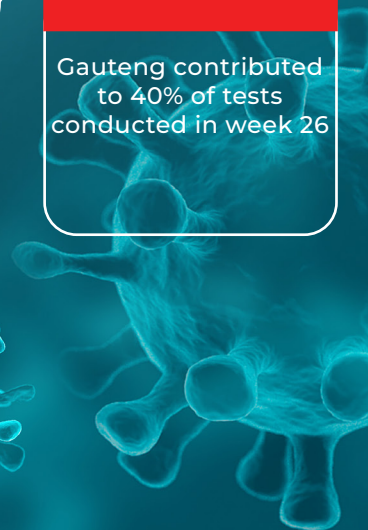
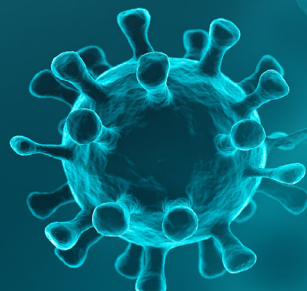
9.6%

OVERALL PROPORTION
TESTING POSITIVE



GAUTENG

Gauteng contributed
to 40% of tests
conducted in week 26



METHODS

Testing for SARS-CoV-2 began on 28 January 2020 at the NICD and after the first case was confirmed on 5 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 17 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. 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. For these results, estimates of overall prevalence were derived using regression techniques. These estimates were then refined using the margins command in Stata to adjust the district-specific positive test prevalences for 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 for a more accurate comparison of the prevalences 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 27 June 2020 (week 26).

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TESTING VOLUMES AND PROPORTION TESTING POSITIVE

From 1 March through 27 June 2020, 1 456 446 laboratory tests for SARS-CoV-2 were performed. The number of tests performed increased week on week from week 10 to week 21, however decreased in weeks 22 and 23 due to a limited supply of extraction and testing kits. Increased volumes of tests have been observed since week 24. In week 26, 148 702 tests were performed however due to testing backlogs 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).

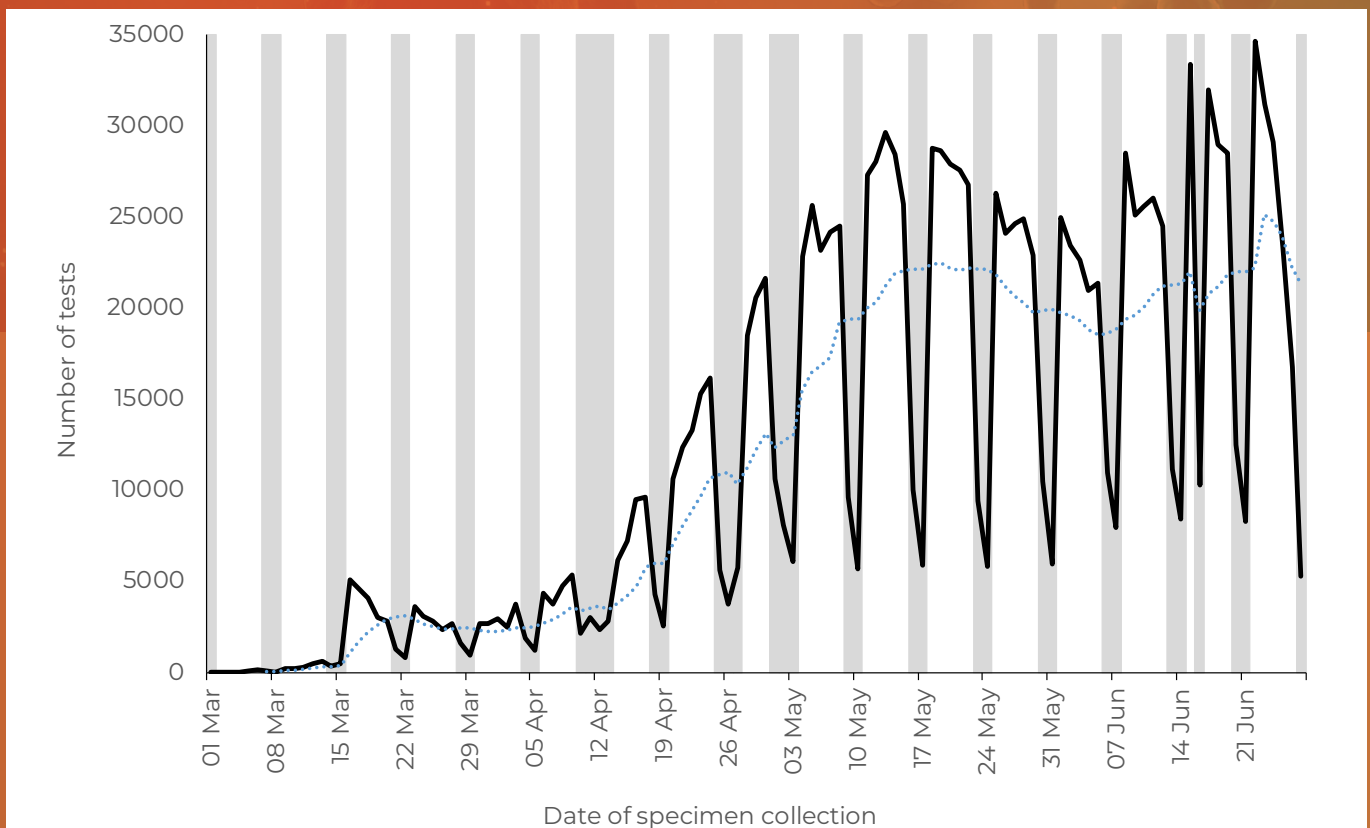


Figure 1. Number of laboratory tests conducted by date of specimen collection, South Africa, 1 March – 27 June 2020. Blue dotted line shows the 7-day moving average of the number of tests conducted. Grey bars highlight weekend days and public holidays

The overall percentage testing positive from week 10 through 26 was 9.6% (Table 1). The percentage testing positive continued to increase week on week, and has increased from 13.5% in week 24, to 18.7% in week 25 and to 23.0% in week 26 ($P < 0.001$) (Figure 2).

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Table 1. Weekly number of tests conducted and positive tests, South Africa, 1 March – 27 June 2020

Week number	Week beginning	No. of tests	No. of positive tests	Proportion testing positive (%)
10	01-Mar	385 (0.0)	6	1.6
11	08-Mar	2 308 (0.2)	86	3.7
12	15-Mar	21 285 (1.5)	825	3.9
13	22-Mar	17 022 (1.2)	462	2.7
14	29-Mar	17 379 (1.2)	393	2.3
15	05-Apr	24 661 (1.7)	567	2.3
16	12-Apr	41 923 (2.9)	1 044	2.5
17	19-Apr	75 902 (5.2)	1 937	2.6
18	26-Apr	88 930 (6.1)	2 910	3.3
19	03-May	136 005 (9.3)	5 553	4.1
20	10-May	154 858 (10.6)	7 385	4.8
21	17-May	154 900 (10.6)	10 499	6.8
22	24-May	139 262 (9.6)	11 606	8.3
23	31-May	130 188 (8.9)	13 146	10.1
24	07-Jun	148 784 (10.2)	20 054	13.5
25	14-Jun	153 952 (10.6)	2 8821	18.7
26	21-Jun	148 702 (10.2)	34 258	23.0
Total		1 456 446 (100.0)	139 552	9.6

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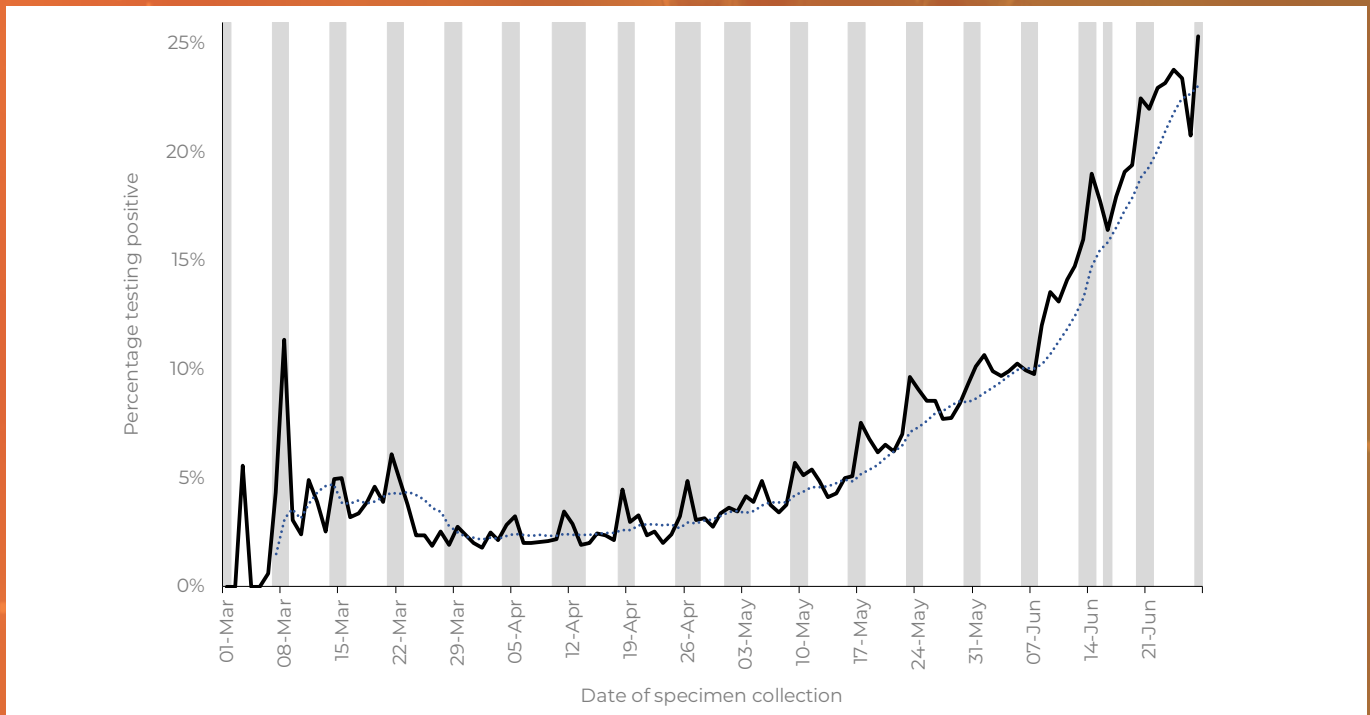


Figure 2. Percentage of laboratory tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March – 27 June 2020. Blue dotted line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays

TESTING IN PRIVATE AND PUBLIC SECTORS

From 1 March through 27 June, 733 806 laboratory tests were conducted in public sector laboratories, with 8.1% testing positive. Over this same period, private sector laboratories conducted 722 640 tests, with 11.1% testing positive (Table 2). Overall the public sector has conducted 50.4% of tests and accounted for 42.4% of cases. The percentage testing positive continued to increase in both the public and private sectors in week 26, and was significantly higher in the public sector (23.4%) compared to the private sector (22.9%) in week 26 ($P=0.04$).

The mean turnaround time in week 26 was 3.2 days overall; 5.2 days in the public sector and 2.3 days in the private sector (Figure 3). The mean turnaround time in the public sector has been decreasing since week 24, when it was 7.9 days. Among tests conducted in the public sector in the five provinces conducting the largest volumes of tests, the turnaround time decreased in all five provinces, and was lowest in the Western Cape (1.6 days) which may be a result of updated testing strategies (Figure 4). Sixteen of the 17 NHLS laboratories with turnaround times greater than 2 days in week 25 had lower turnaround times in week 26, with 9 of these laboratories with turnaround times less than 2 days in week 26 (Figure 5).

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Table 2. Weekly number of tests conducted and positive tests, by healthcare sector, South Africa, 1 March – 27 June 2020

Week number	Week beginning	Public sector		Private sector		Public sector proportion of		Ratio of PTP ^a
		Tests	Cases	Tests	Cases	Tests (%)	Cases (%)	
10	01-Mar	249	5 (2.0)	136	1 (0.7)	64.7	83.3	2.731
11	08-Mar	348	12 (3.4)	1 960	74 (3.8)	15.1	14.0	0.913
12	15-Mar	1 346	50 (3.7)	19 939	775 (3.9)	6.3	6.1	0.956
13	22-Mar	3 355	121 (3.6)	13 667	341 (2.5)	19.7	26.2	1.445
14	29-Mar	5 620	158 (2.8)	11 759	235 (2.0)	32.3	40.2	1.407
15	05-Apr	11 375	319 (2.8)	13 286	248 (1.9)	46.1	56.3	1.502
16	12-Apr	23 824	609 (2.6)	18 099	435 (2.4)	56.8	58.3	1.064
17	19-Apr	54 302	1 481 (2.7)	21 600	456 (2.1)	71.5	76.5	1.292
18	26-Apr	65 722	2 300 (3.5)	23 208	610 (2.6)	73.9	79.0	1.331
19	03-May	91 562	4 264 (4.7)	44 443	1 289 (2.9)	67.3	76.8	1.606
20	10-May	102 892	5 115 (5.0)	51 966	2 270 (4.4)	66.4	69.3	1.138
21	17-May	94 949	6 592 (6.9)	59 951	3 907 (6.5)	61.3	62.8	1.065
22	24-May	73 126	5 875 (8.0)	66 136	5 731 (8.7)	52.5	50.6	0.927
23	31-May	58 018	5 831 (10.1)	72 170	7 315 (10.1)	44.6	44.4	0.992
24	07-Jun	56 970	6 963 (12.2)	91 814	13 091 (14.3)	38.3	34.7	0.857
25	14-Jun	49 946	10 049 (20.1)	104 006	18 772 (18.0)	32.4	34.9	1.115
26	21-Jun	40 202	9 411 (23.4)	108 500	24 847 (22.9)	27.0	27.5	1.022
Total		733 806	59 155 (8.1)	722 640	80 397 (11.1)	50.4	42.4	0.725

^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)

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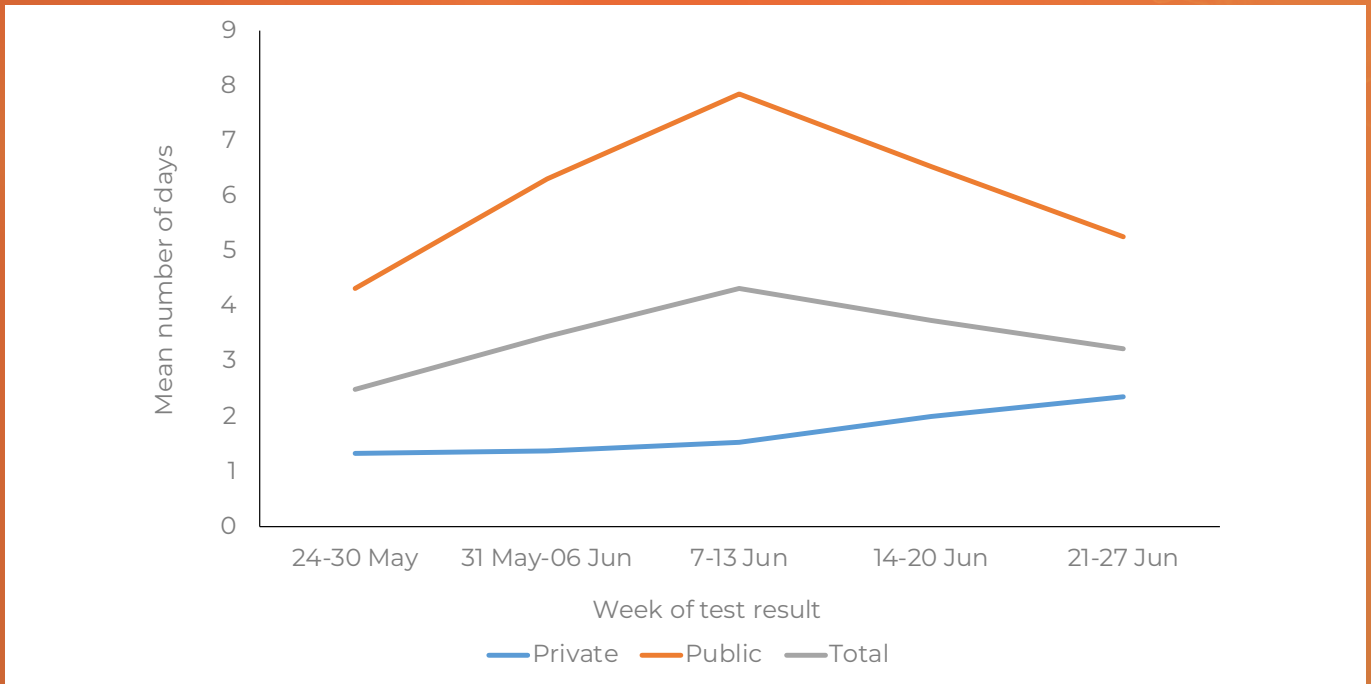


Figure 3. Mean number of days between date of specimen collection and date of test result, by week of test result, South Africa, 24 May – 27 June 2020

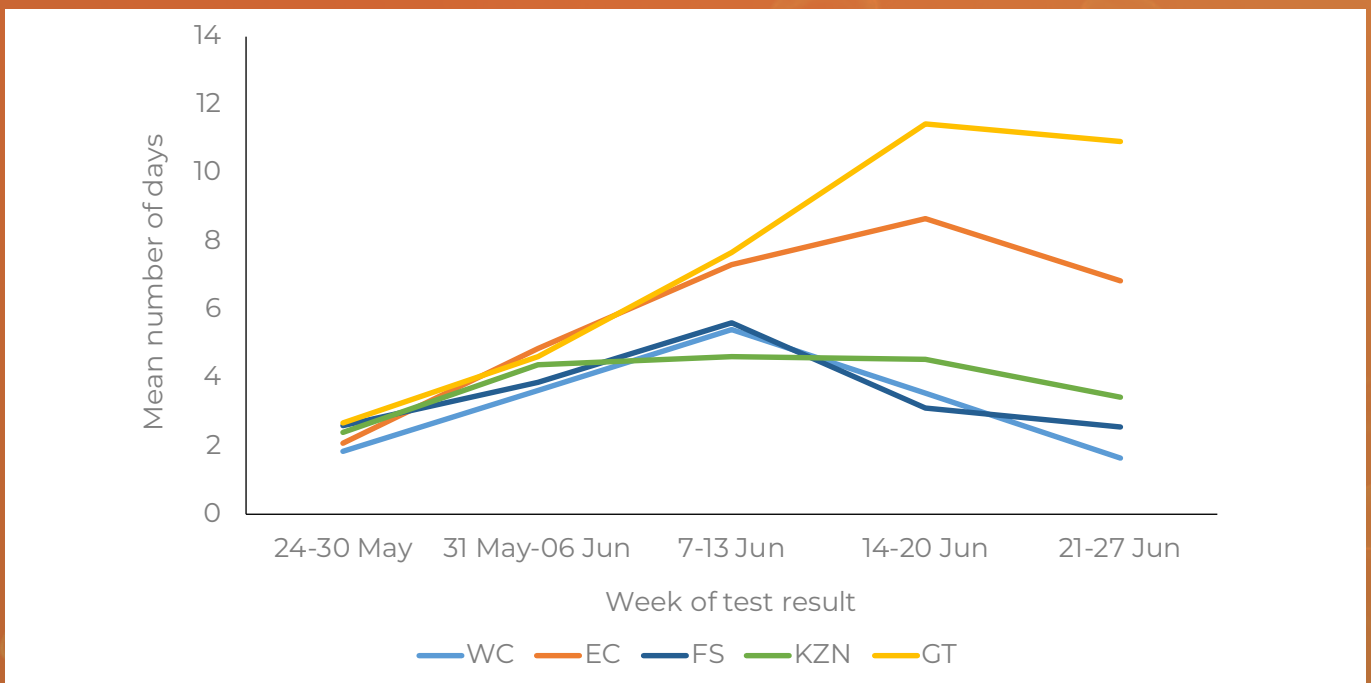


Figure 4. Mean number of days between date of specimen collection and date of test result, by week of test result and province, South Africa, 24 May – 27 June 2020. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal, GT, Gauteng

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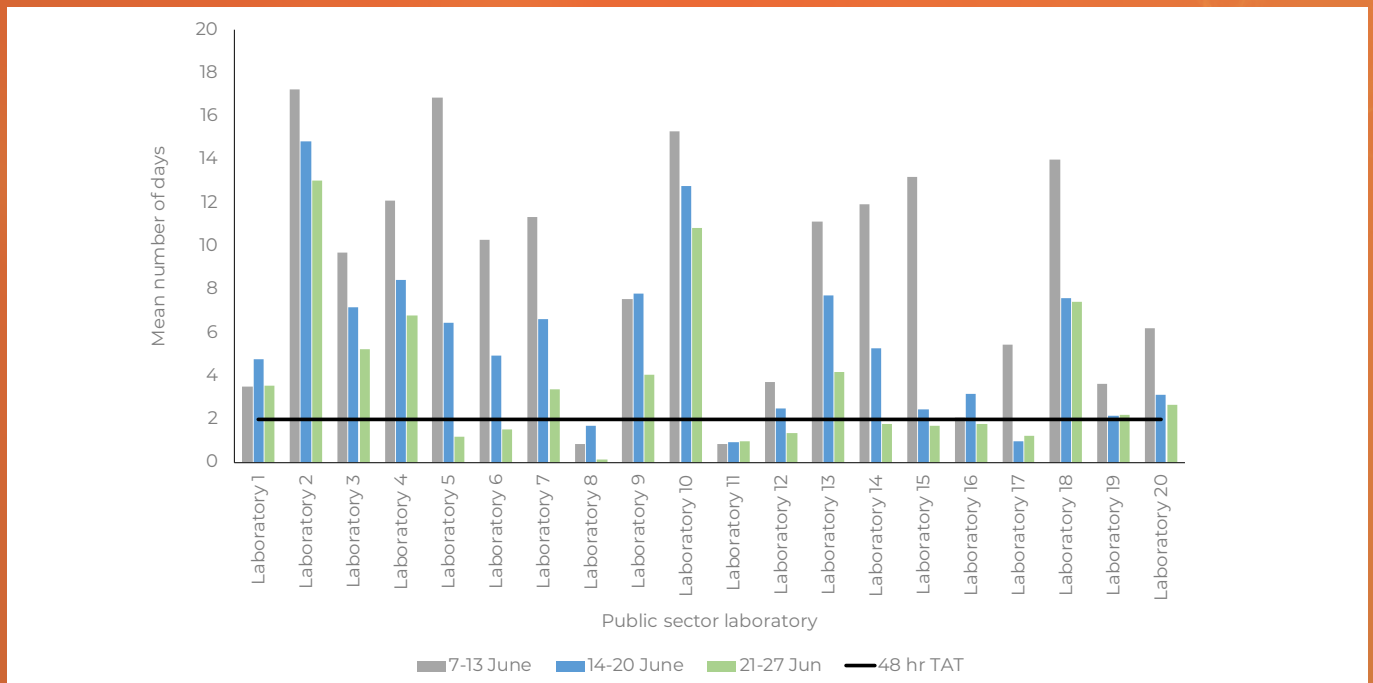


Figure 5. Mean number of days between date of specimen collection and date of test result, by public sector laboratory, 7 June – 27 June 2020. The horizontal black line indicates 48-hour turnaround time (TAT)

TESTING BY PROVINCE

In the past week Gauteng province performed the largest numbers of tests, accounting for 40% of tests nationally (Figure 6, Table 3). Except for a decrease in weekly testing due to supply shortages between week 20 and 23, the number of samples tested in Gauteng has been increasing every week (Figure 2). Testing volumes in the Western Cape have been decreasing since week 21. This follows changes in the testing strategy in the province to focus on hospitalised individuals and individuals with underlying risk conditions.

Four provinces including Western Cape, Eastern Cape, KwaZulu-Natal and Gauteng performed 83.9% of tests in week 26. Eastern Cape (32.6%) and Western Cape (29.3%) provinces continued to have the highest percentage testing positive in week 26 (Figure 7). In addition, Gauteng, North West and KwaZulu-Natal provinces each had percentage testing positive of >15% in the past week. Based on the last three weeks, the percentage testing positive is still increasing significantly in all 9 provinces (Western Cape ($P<0.001$), Eastern Cape ($P<0.001$), Northern Cape ($P=0.005$), Free State ($P<0.001$), KwaZulu-Natal ($P<0.001$), North West ($P<0.001$), Gauteng ($P<0.001$), Mpumalanga ($P<0.001$) and Limpopo ($P<0.001$)). The percentage testing positive was higher than the national average, not weighted for population size, in the Western Cape, Eastern Cape and Gauteng provinces (Figure 7).

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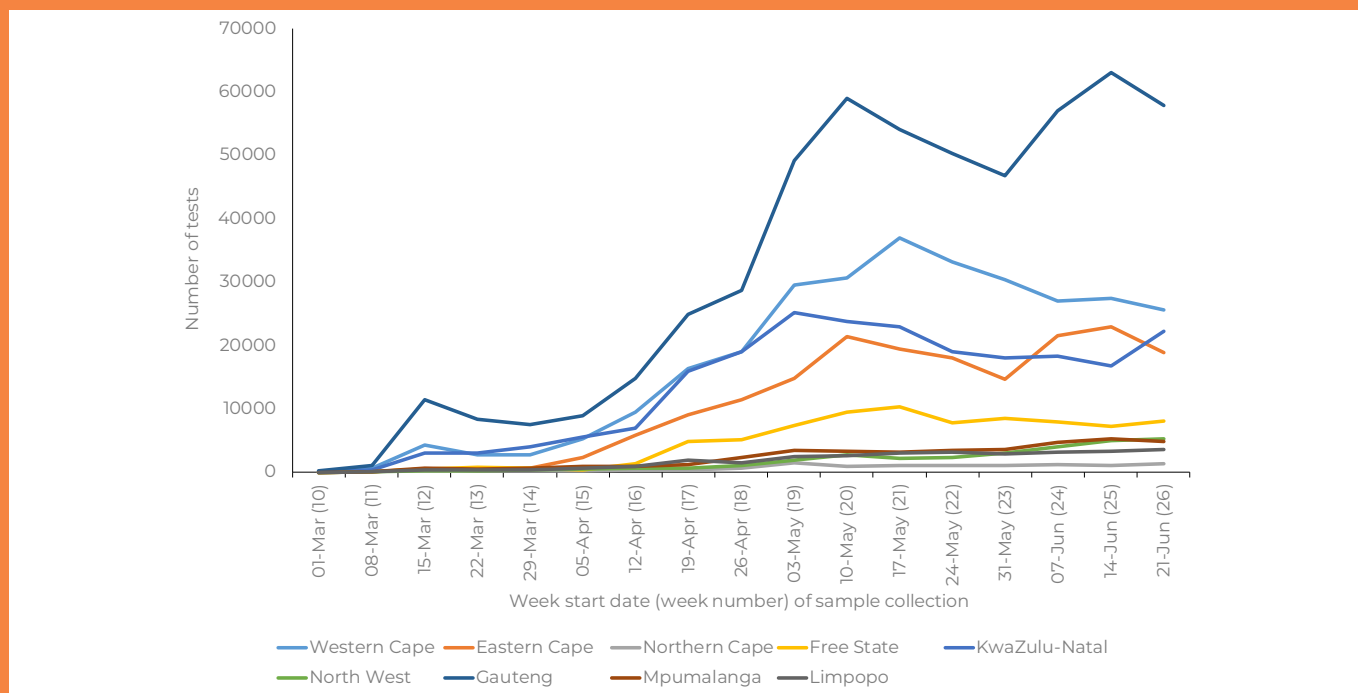


Figure 6. Weekly number of laboratory tests conducted per province by date of specimen collection, South Africa, 1 March – 27 June 2020

Table 3. Weekly number of tests performed and positive tests, by province, South Africa, 7 June – 27 June 2020

Province	7-13 June		14-20 June		21-27 June	
	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	26 958	7 278 (27.0)	27 378	7 736 (28.3)	25 662	7 520 (29.3)
Eastern Cape	21 556	4 122 (19.1)	22 998	6 318 (27.5)	18 904	6 163 (32.6)
Northern Cape	1 185	82 (6.9)	1 064	50 (4.7)	1 275	102 (8.0)
Free State	7 874	216 (2.7)	7 168	354 (4.9)	8 039	604 (7.5)
KwaZulu-Natal	18 263	788 (4.3)	16 799	1 564 (9.3)	22 261	3 400 (15.3)
North West	3 951	442 (11.2)	4 977	780 (15.7)	5 203	958 (18.4)
Gauteng	57 063	6 418 (11.2)	63 064	11 128 (17.6)	57 878	14 397 (24.9)
Mpumalanga	4 723	273 (5.8)	5 203	446 (8.6)	4 850	578 (11.9)
Limpopo	3 199	122 (3.8)	3 248	185 (5.7)	3 560	351 (9.9)
Unknown	4 012	313 (7.8)	2 053	260 (12.7)	1 070	185 (17.3)
Total	148 784	20 054 (13.5)	153 952	28 821 (18.7)	148 702	34 258 (23.0)

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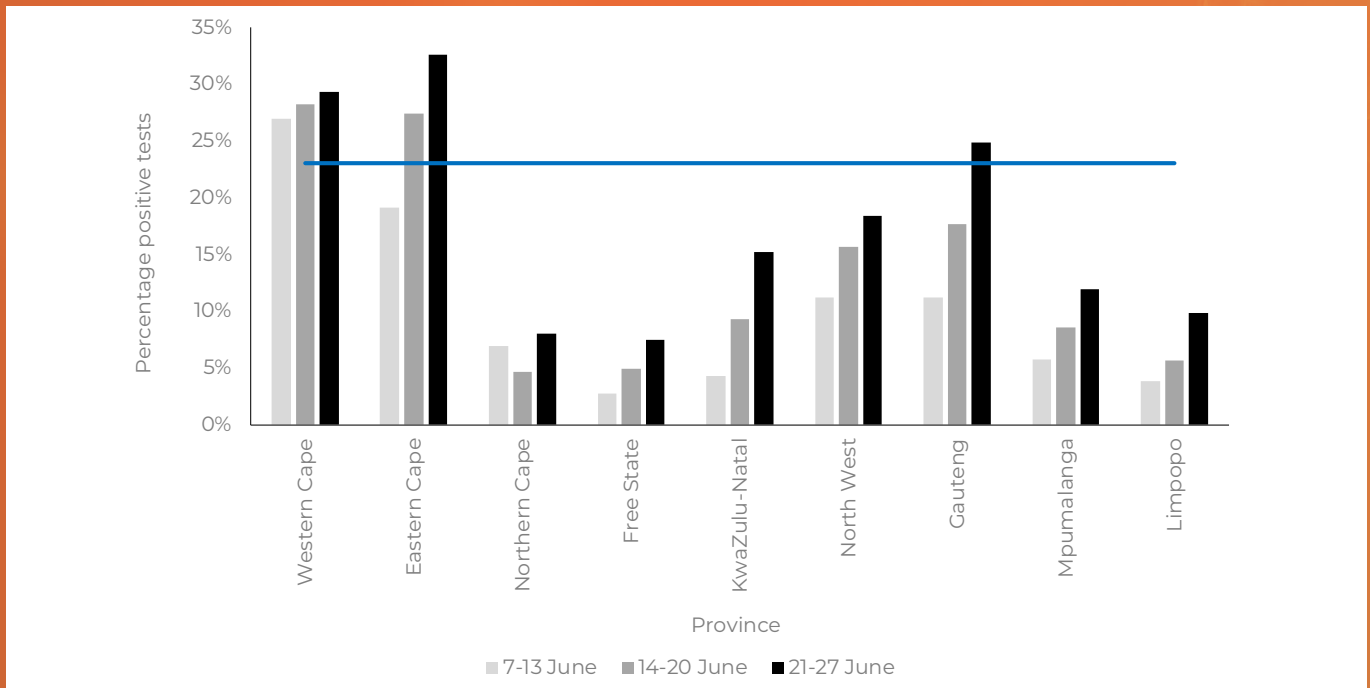


Figure 7. Weekly percentage testing positive, by province, South Africa, 7 June – 27 June 2020. The horizontal blue line shows the national mean for week 26, beginning 21 June 2020

TESTING IN THE PUBLIC SECTOR

In the public sector, the percentage testing positive increased to 23.4% in week 26 (Table 4). The percentage testing positive was >20% in Western Cape (34.9%), Eastern Cape (33.3%) and Gauteng (25.7%) provinces. The percentage testing positive in the public sector remains higher than the national average, not weighted for population size, in the Western Cape, Eastern Cape and Gauteng provinces (Figure 8).

Table 4. Weekly number of tests conducted and positive tests in the public sector, by province, South Africa, 7 June – 27 June 2020

Province	7-13 June		14-20 June		21-27 June	
	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	8 388	2 877 (34.3)	9 345	3 385 (36.2)	9 615	3 357 (34.9)
Eastern Cape	11 433	2 001 (17.5)	1 0479	2 891 (27.6)	6 510	2 168 (33.3)
Northern Cape	2	0 (0.0)	9	0 (0.0)	1	0 (0.0)

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Free State	5 748	139 (2.4)	4 896	183 (3.7)	5 145	298 (5.8)
KwaZulu-Natal	9 200	372 (4.0)	7 087	682 (9.6)	6 532	851 (13.0)
North West	668	58 (8.7)	1 173	135 (11.5)	1 250	212 (17.0)
Gauteng	19 386	1 464 (7.6)	15 073	2 687 (17.8)	8 952	2 305 (25.7)
Mpumalanga	481	20 (4.2)	324	22 (6.8)	407	38 (9.3)
Limpopo	1 664	32 (1.9)	1 560	64 (4.1)	1 789	182 (10.2)
Unknown	0	0 (0.0)	0	0 (0.0)	1	0 (0.0)
Total	56 970	69 63 (12.2)	49 946	10 049 (20.1)	40 202	9 411 (23.4)

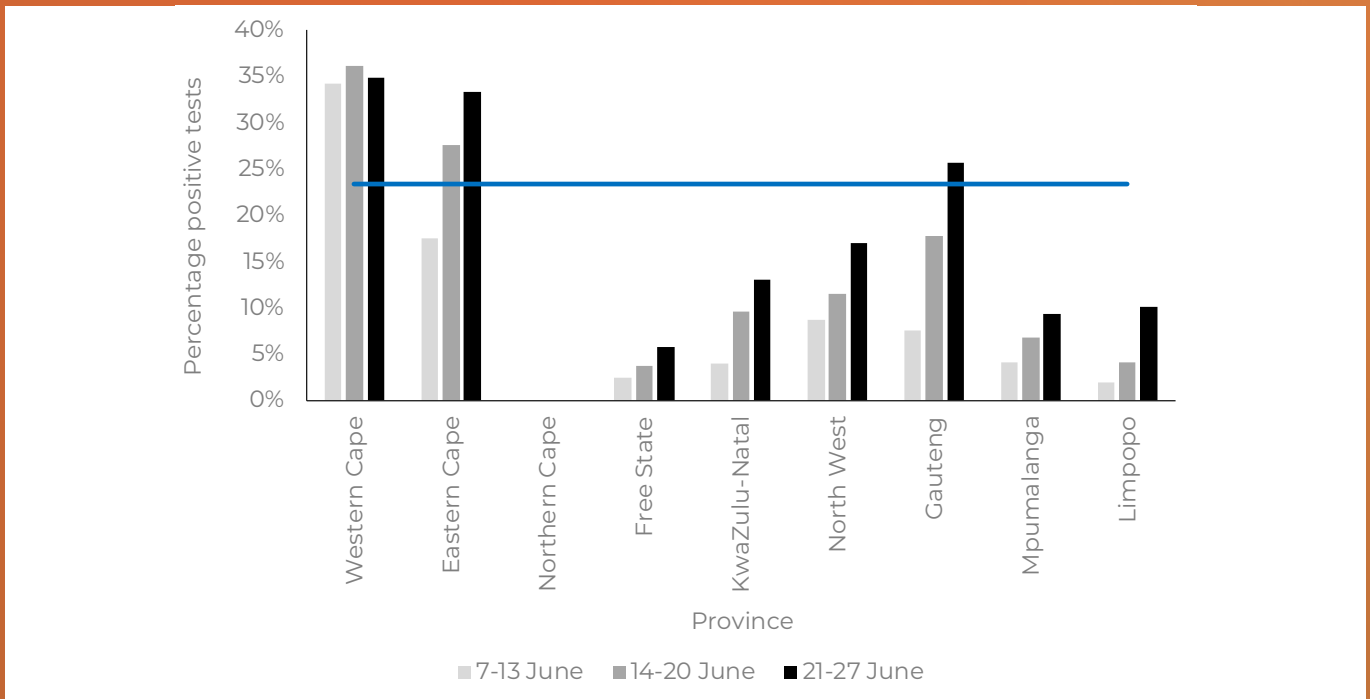


Figure 8. Weekly percentage testing positive in the public sector, by province, South Africa, 7 June – 27 June 2020. The horizontal blue line shows the national mean for week 26, beginning 21 June 2020

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PUBLIC FACILITIES WITH HIGH PROPORTIONS TESTING POSITIVE

Table 5 shows public healthcare facilities that tested ≥ 25 specimens and had the highest proportion testing positive (>0.2) in the week of 21-27 June. The list continues to be dominated by facilities in the Western Cape, Eastern Cape, and Gauteng. The increase in the number of facilities reporting high observed proportions testing positive, and the growing number of hospitals in this list (although not all those tested would be admitted as in-patients) would also suggest that recent changes in testing strategies are increasingly identifying symptomatic individuals presenting for testing.

Table 5. Public healthcare facilities with a high proportion testing positive, 21-27 June 2020

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Gauteng	46	0.804 (0.690;0.919)
Facility 2	Western Cape	27	0.667 (0.489;0.844)
Facility 3	Gauteng	86	0.651 (0.550;0.752)
Facility 4	North West	25	0.640 (0.452;0.828)
Facility 5	Eastern Cape	30	0.600 (0.425;0.775)
Facility 6	Western Cape	30	0.600 (0.425;0.775)
Facility 7	Gauteng	1 444	0.598 (0.572;0.623)
Facility 8	Western Cape	82	0.585 (0.479;0.692)
Facility 9	Western Cape	106	0.585 (0.491;0.679)
Facility 10	Eastern Cape	46	0.565 (0.422;0.708)
Facility 11	Western Cape	78	0.551 (0.441;0.662)
Facility 12	Western Cape	66	0.545 (0.425;0.666)
Facility 13	Eastern Cape	56	0.536 (0.405;0.666)
Facility 14	Gauteng	34	0.529 (0.362;0.697)
Facility 15	Eastern Cape	34	0.529 (0.362;0.697)
Facility 16	Western Cape	42	0.524 (0.373;0.675)
Facility 17	Western Cape	221	0.520 (0.454;0.586)
Facility 18	Eastern Cape	29	0.517 (0.335;0.699)
Facility 19	Western Cape	130	0.508 (0.422;0.594)

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Facility 20	Western Cape	67	0.507 (0.388;0.627)
Facility 21	Gauteng	89	0.506 (0.402;0.609)
Facility 22	Eastern Cape	48	0.500 (0.359;0.641)
Facility 23	Western Cape	74	0.500 (0.386;0.614)
Facility 24	Western Cape	46	0.500 (0.356;0.644)
Facility 25	KwaZulu-Natal	30	0.500 (0.321;0.679)
Facility 26	Western Cape	58	0.500 (0.371;0.629)
Facility 27	North West	40	0.500 (0.345;0.655)
Facility 28	Gauteng	113	0.496 (0.403;0.588)
Facility 29	Western Cape	57	0.491 (0.361;0.621)
Facility 30	Gauteng	45	0.489 (0.343;0.635)
Facility 31	Western Cape	33	0.485 (0.314;0.655)
Facility 32	Western Cape	111	0.477 (0.385;0.570)
Facility 33	Western Cape	141	0.475 (0.393;0.558)
Facility 34	Eastern Cape	215	0.470 (0.403;0.536)
Facility 35	Western Cape	330	0.470 (0.416;0.524)
Facility 36	Western Cape	32	0.469 (0.296;0.642)
Facility 37	Gauteng	41	0.463 (0.311;0.616)
Facility 38	Gauteng	314	0.462 (0.407;0.517)
Facility 39	Western Cape	39	0.462 (0.305;0.618)
Facility 40	Western Cape	96	0.448 (0.348;0.547)
Facility 41	Eastern Cape	315	0.448 (0.393;0.503)
Facility 42	Eastern Cape	47	0.447 (0.305;0.589)
Facility 43	Eastern Cape	27	0.444 (0.257;0.632)
Facility 44	Eastern Cape	197	0.442 (0.372;0.511)
Facility 45	Eastern Cape	234	0.440 (0.377;0.504)
Facility 46	Western Cape	25	0.440 (0.245;0.635)
Facility 47	Western Cape	32	0.438 (0.266;0.609)
Facility 48	Eastern Cape	64	0.438 (0.316;0.559)

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Facility 49	Western Cape	175	0.429 (0.355;0.502)
Facility 50	Western Cape	145	0.428 (0.347;0.508)
Facility 51	Gauteng	211	0.427 (0.360;0.493)
Facility 52	Gauteng	26	0.423 (0.233;0.613)
Facility 53	Western Cape	93	0.419 (0.319;0.520)
Facility 54	Western Cape	469	0.412 (0.367;0.456)
Facility 55	Western Cape	39	0.410 (0.256;0.565)
Facility 56	Western Cape	183	0.410 (0.339;0.481)
Facility 57	Gauteng	64	0.406 (0.286;0.527)
Facility 58	Western Cape	124	0.403 (0.317;0.490)
Facility 59	Western Cape	55	0.400 (0.271;0.529)
Facility 60	Gauteng	30	0.400 (0.225;0.575)
Facility 61	Gauteng	25	0.400 (0.208;0.592)
Facility 62	Gauteng	223	0.399 (0.335;0.463)
Facility 63	Eastern Cape	48	0.396 (0.257;0.534)
Facility 64	Eastern Cape	539	0.395 (0.354;0.436)
Facility 65	Eastern Cape	28	0.393 (0.212;0.574)
Facility 66	Western Cape	28	0.393 (0.212;0.574)
Facility 67	Western Cape	41	0.390 (0.241;0.540)
Facility 68	Western Cape	430	0.386 (0.340;0.432)
Facility 69	Gauteng	39	0.385 (0.232;0.537)
Facility 70	Western Cape	39	0.385 (0.232;0.537)
Facility 71	Gauteng	39	0.385 (0.232;0.537)
Facility 72	Eastern Cape	29	0.379 (0.203;0.556)
Facility 73	Gauteng	45	0.378 (0.236;0.519)
Facility 74	Western Cape	361	0.377 (0.327;0.427)
Facility 75	Western Cape	40	0.375 (0.225;0.525)
Facility 76	Eastern Cape	177	0.373 (0.302;0.444)
Facility 77	Western Cape	62	0.371 (0.251;0.491)
Facility 78	Western Cape	54	0.370 (0.242;0.499)

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Facility 79	Eastern Cape	108	0.370 (0.279;0.461)
Facility 80	Eastern Cape	358	0.369 (0.319;0.419)
Facility 81	Gauteng	231	0.368 (0.306;0.430)
Facility 82	Western Cape	61	0.361 (0.240;0.481)
Facility 83	Eastern Cape	28	0.357 (0.180;0.535)
Facility 84	Gauteng	87	0.356 (0.256;0.457)
Facility 85	Gauteng	31	0.355 (0.186;0.523)
Facility 86	Western Cape	31	0.355 (0.186;0.523)
Facility 87	Eastern Cape	48	0.354 (0.219;0.489)
Facility 88	Eastern Cape	243	0.354 (0.294;0.414)
Facility 89	Western Cape	68	0.353 (0.239;0.467)
Facility 90	Western Cape	143	0.350 (0.271;0.428)
Facility 91	Gauteng	115	0.348 (0.261;0.435)
Facility 92	Western Cape	52	0.346 (0.217;0.475)
Facility 93	North West	26	0.346 (0.163;0.529)
Facility 94	Free State	29	0.345 (0.172;0.518)
Facility 95	Western Cape	1069	0.344 (0.316;0.373)
Facility 96	Western Cape	32	0.344 (0.179;0.508)
Facility 97	Eastern Cape	117	0.342 (0.256;0.428)
Facility 98	Western Cape	41	0.341 (0.196;0.487)
Facility 99	Eastern Cape	41	0.341 (0.196;0.487)
Facility 100	Western Cape	538	0.336 (0.297;0.376)
Facility 101	Eastern Cape	284	0.335 (0.280;0.389)
Facility 102	Gauteng	87	0.333 (0.234;0.432)
Facility 103	Western Cape	66	0.333 (0.220;0.447)
Facility 104	Western Cape	63	0.333 (0.217;0.450)
Facility 105	Eastern Cape	187	0.326 (0.259;0.393)
Facility 106	Gauteng	108	0.324 (0.236;0.412)
Facility 107	Eastern Cape	239	0.322 (0.263;0.381)
Facility 108	Gauteng	389	0.316 (0.270;0.362)

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Facility 109	Gauteng	356	0.315 (0.266;0.363)
Facility 110	Gauteng	311	0.309 (0.257;0.360)
Facility 111	Western Cape	36	0.306 (0.155;0.456)
Facility 112	Western Cape	46	0.304 (0.171;0.437)
Facility 113	Western Cape	53	0.302 (0.178;0.425)
Facility 114	Gauteng	40	0.300 (0.158;0.442)
Facility 115	Gauteng	94	0.298 (0.205;0.390)
Facility 116	Gauteng	37	0.297 (0.150;0.445)
Facility 117	Western Cape	51	0.294 (0.169;0.419)
Facility 118	Western Cape	767	0.293 (0.261;0.326)
Facility 119	Western Cape	79	0.291 (0.191;0.391)
Facility 120	Western Cape	55	0.291 (0.171;0.411)
Facility 121	North West	38	0.289 (0.145;0.434)
Facility 122	Gauteng	95	0.284 (0.194;0.375)
Facility 123	Eastern Cape	67	0.284 (0.176;0.392)
Facility 124	Eastern Cape	146	0.281 (0.208;0.354)
Facility 125	Gauteng	36	0.278 (0.131;0.424)
Facility 126	Western Cape	87	0.276 (0.182;0.370)
Facility 127	Western Cape	40	0.275 (0.137;0.413)
Facility 128	Gauteng	229	0.271 (0.213;0.328)
Facility 129	Gauteng	222	0.270 (0.212;0.329)
Facility 130	Eastern Cape	242	0.269 (0.213;0.324)
Facility 131	KwaZulu-Natal	41	0.268 (0.133;0.404)
Facility 132	Western Cape	153	0.268 (0.198;0.338)
Facility 133	KwaZulu-Natal	245	0.257 (0.202;0.312)
Facility 134	Mpumalanga	39	0.256 (0.119;0.393)
Facility 135	Eastern Cape	75	0.253 (0.155;0.352)
Facility 136	Eastern Cape	79	0.253 (0.157;0.349)
Facility 137	Eastern Cape	29	0.241 (0.086;0.397)
Facility 138	North West	373	0.241 (0.198;0.285)

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Facility 139	Eastern Cape	50	0.240 (0.122;0.358)
Facility 140	Gauteng	76	0.237 (0.141;0.332)
Facility 141	Eastern Cape	48	0.229 (0.110;0.348)
Facility 142	Eastern Cape	47	0.213 (0.096;0.330)
Facility 143	UNKNOWN	133	0.211 (0.141;0.280)
Facility 144	Western Cape	140	0.207 (0.140;0.274)
Facility 145	Free State	29	0.207 (0.059;0.354)
Facility 146	Free State	103	0.204 (0.126;0.282)
Facility 147	KwaZulu-Natal	79	0.203 (0.114;0.291)
Facility 148	KwaZulu-Natal	80	0.200 (0.112;0.288)
Facility 149	Western Cape	55	0.200 (0.094;0.306)

*Colour coding is used to demarcate PTP bands ($\geq 40\%$; 30%-39%; 20%-29%)
95% CI: 95% confidence interval; PTP: positive test proportion

PUBLIC SECTOR TESTING: HEALTH DISTRICT-LEVEL RESULTS

The data from public testing activities in week from 21-27 June, from public facilities have been located within the spatial framework of the health districts and health sub-districts (in the metros). The results, for municipalities and metropolitan health sub-districts showing an adjusted positive test prevalence (PTP) greater than 0.1, are shown in the table 6. With the exception of Saldanha Bay (in the Western Cape), all other districts showing significant increases are in other provinces. Proportions testing positive fell significantly in two districts in KwaZulu-Natal.

The data for every district with a non-zero proportion testing positive or where the range of confidence interval is not more than 0.5 (0.25 either side of the point estimate) for the current week is presented in Figure 9.

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Table 6. Health sub-districts with a high proportion testing positive based on public sector data for the week of 20-27 June 2020

Health district or sub-district	Province	PTP (95% CI)	Previous week
Gariep	Eastern Cape	0.575 (0.480-0.671)	0.150 (0.084-0.217)
CT Khayelitsha	Western Cape	0.496 (0.450-0.541)	0.540 (0.497-0.583)
Lukanji	Eastern Cape	0.466 (0.376-0.555)	0.298 (0.255-0.341)
Emalahleni	Eastern Cape	0.465 (0.343-0.587)	0.283 (0.216-0.349)
Buffalo City	Eastern Cape	0.459 (0.431-0.488)	0.345 (0.319-0.372)
CT Klipfontein	Western Cape	0.447 (0.386-0.509)	0.436 (0.382-0.490)
Breede Valley	Western Cape	0.445 (0.381-0.508)	0.401 (0.354-0.447)
Saldanha Bay	Western Cape	0.433 (0.352-0.514)	0.234 (0.186-0.283)
Nxuba	Eastern Cape	0.430 (0.308-0.551)	...
Overstrand	Western Cape	0.423 (0.355-0.491)	0.417 (0.350-0.484)
CT Eastern	Western Cape	0.418 (0.376-0.461)	0.399 (0.362-0.435)
Elundini	Eastern Cape	0.400 (0.289-0.511)	0.133 (0.093-0.173)
Ndlambe	Eastern Cape	0.397 (0.284-0.509)	...
Nelson Mandela Bay A	Eastern Cape	0.387 (0.318-0.455)	0.391 (0.337-0.445)
CT Mitchells Plain	Western Cape	0.386 (0.350-0.421)	0.406 (0.366-0.445)
Theewaterskloof	Western Cape	0.384 (0.292-0.477)	0.338 (0.265-0.410)
Langeberg	Western Cape	0.368 (0.292-0.445)	0.339 (0.275-0.404)
Bitou	Western Cape	0.367 (0.237-0.497)	...
Johannesburg D	Gauteng	0.361 (0.320-0.402)	0.190 (0.168-0.212)
Makana	Eastern Cape	0.352 (0.241-0.463)	0.312 (0.225-0.399)
Mbhashe	Eastern Cape	0.349 (0.263-0.435)	0.336 (0.250-0.421)
Drakenstein	Western Cape	0.343 (0.291-0.395)	0.392 (0.347-0.437)
Nelson Mandela Bay C	Eastern Cape	0.340 (0.314-0.367)	0.282 (0.259-0.305)
Johannesburg E	Gauteng	0.338 (0.283-0.392)	0.273 (0.234-0.312)
CT Tygerberg	Western Cape	0.336 (0.313-0.359)	0.355 (0.330-0.379)
King Sabata Dalindyebo	Eastern Cape	0.333 (0.297-0.370)	0.304 (0.266-0.342)
CT Northern	Western Cape	0.330 (0.267-0.394)	0.343 (0.279-0.407)

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Stellenbosch	Western Cape	0.329 (0.257-0.401)	0.458 (0.386-0.530)
Ekurhuleni South 1	Gauteng	0.373 (0.272-0.574)	0.177 (0.141-0.214)
CT Western	Western Cape	0.316 (0.299-0.334)	0.312 (0.290-0.335)
Johannesburg F	Gauteng	0.311 (0.290-0.332)	0.261 (0.241-0.280)
Mhlontlo	Eastern Cape	0.306 (0.225-0.387)	0.132 (0.090-0.174)
Ekurhuleni South 2	Gauteng	0.304 (0.259-0.349)	0.133 (0.103-0.163)
Nelson Mandela Bay B	Eastern Cape	0.303 (0.272-0.334)	0.313 (0.283-0.344)
Nyandeni	Eastern Cape	0.302 (0.251-0.354)	0.303 (0.247-0.359)
Ekurhuleni East 2	Gauteng	0.301 (0.232-0.369)	0.160 (0.118-0.201)
George	Western Cape	0.295 (0.244-0.346)	0.270 (0.222-0.318)
Johannesburg C	Gauteng	0.281 (0.157-0.405)	0.143 (0.106-0.179)
City of Matlosana	North West	0.279 (0.239-0.319)	0.220 (0.179-0.260)
Inxuba Yethemba	Eastern Cape	0.278 (0.184-0.373)	0.180 (0.124-0.236)
Nkonkobe	Eastern Cape	0.276 (0.159-0.393)	0.292 (0.243-0.340)
Tshwane 6	Gauteng	0.272 (0.201-0.343)	0.169 (0.129-0.210)
Ekurhuleni North 2	Gauteng	0.270 (0.234-0.306)	0.208 (0.174-0.243)
Bergrivier	Western Cape	0.266 (0.039-0.494)	...
Johannesburg A	Gauteng	0.262 (0.199-0.326)	0.113 (0.080-0.147)
Lepele-Nkumpi	Limpopo	0.262 (0.145-0.379)	0.063 (0.000-0.146)
Johannesburg B	Gauteng	0.262 (0.234-0.289)	0.275 (0.247-0.302)
Emfuleni	Gauteng	0.256 (0.195-0.317)	0.121 (0.094-0.148)
CT Southern	Western Cape	0.253 (0.220-0.286)	0.257 (0.228-0.286)
Emnambithi/Ladysmith	KwaZulu-Natal	0.252 (0.166-0.339)	0.252 (0.157-0.346)
Ekurhuleni East 1	Gauteng	0.251 (0.178-0.325)	0.123 (0.092-0.154)
Tshwane 7	Gauteng	0.250 (0.156-0.343)	0.099 (0.040-0.157)
Ekurhuleni North 1	Gauteng	0.247 (0.185-0.309)	0.189 (0.150-0.227)
Elias Motsoaledi	Limpopo	0.240 (0.138-0.343)	0.062 (0.009-0.115)
Cape Agulhas	Western Cape	0.239 (0.093-0.385)	...
Knysna	Western Cape	0.238 (0.172-0.304)	0.145 (0.084-0.206)
Kouga	Eastern Cape	0.235 (0.182-0.287)	0.332 (0.277-0.388)

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Cederberg	Western Cape	0.222 (0.048-0.395)	0.237 (0.118-0.357)
Tshwane 3	Gauteng	0.220 (0.195-0.245)	0.144 (0.128-0.161)
Swartland	Western Cape	0.219 (0.159-0.279)	0.232 (0.180-0.284)
Witzenberg	Western Cape	0.219 (0.154-0.285)	0.276 (0.221-0.332)
Sundays River Valley	Eastern Cape	0.219 (0.149-0.289)	0.321 (0.252-0.389)
Umzimvubu	Eastern Cape	0.213 (0.144-0.282)	0.614 (0.562-0.665)
Mogale City	Gauteng	0.211 (0.178-0.244)	0.181 (0.153-0.208)
Ntabankulu	Eastern Cape	0.205 (0.090-0.320)	...
Metsimaholo	Free State	0.204 (0.141-0.268)	0.049 (0.011-0.088)
Mbombela	Mpumalanga	0.198 (0.113-0.283)	...
Umtshezi	KwaZulu-Natal	0.179 (0.126-0.232)	0.323 (0.242-0.403)
Msinga	KwaZulu-Natal	0.174 (0.122-0.227)	...
eThekweni North	KwaZulu-Natal	0.172 (0.143-0.201)	0.164 (0.130-0.199)
Hessequa	Western Cape	0.170 (0.016-0.324)	0.026 (0.000-0.075)
Merafong City	Gauteng	0.168 (0.095-0.240)	0.202 (0.155-0.249)
Swellendam	Western Cape	0.168 (0.054-0.282)	...
Mossel Bay	Western Cape	0.165 (0.129-0.202)	0.096 (0.057-0.135)
Westonaria	Gauteng	0.160 (0.043-0.276)	0.033 (0.000-0.070)
Camdeboo	Eastern Cape	0.159 (0.051-0.267)	...
Emalahleni	Mpumalanga	0.156 (0.075-0.237)	0.283 (0.216-0.349)
Steve Tshwete	Mpumalanga	0.155 (0.083-0.228)	0.094 (0.028-0.160)
Rustenburg	North West	0.153 (0.110-0.195)	0.081 (0.051-0.111)
eThekweni South	KwaZulu-Natal	0.151 (0.137-0.166)	0.099 (0.085-0.112)
Lesedi	Gauteng	0.151 (0.061-0.242)	0.050 (0.014-0.087)
Moqhaka	Free State	0.146 (0.085-0.207)	0.054 (0.018-0.091)
Dihlabeng	Free State	0.140 (0.069-0.211)	0.024 (0.001-0.047)
Tshwane 1	Gauteng	0.139 (0.113-0.165)	0.096 (0.077-0.114)
uMngeni	KwaZulu-Natal	0.119 (0.059-0.180)	0.201 (0.130-0.273)
KwaDukuza	KwaZulu-Natal	0.115 (0.073-0.156)	0.031 (0.010-0.052)
Pixley Ka Seme	Mpumalanga	0.114 (0.034-0.194)	0.218 (0.103-0.333)

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Lephalale	Limpopo	0.113 (0.076-0.149)	0.122 (0.051-0.193)
Ngwathe	Free State	0.110 (0.056-0.165)	0.019 (0.000-0.045)
Matzikama	Western Cape	0.110 (0.033-0.187)	0.173 (0.079-0.267)
Polokwane	Limpopo	0.109 (0.074-0.144)	0.032 (0.001-0.063)
Mafikeng	North West	0.104 (0.052-0.155)	0.073 (0.033-0.113)
Maluti a Phofung	Free State	0.101 (0.062-0.141)	0.052 (0.027-0.078)

95% CI: 95% confidence interval; PTP: adjusted positive test proportion; CT: Cape Town; 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
 "... " indicates no data available for the previous week

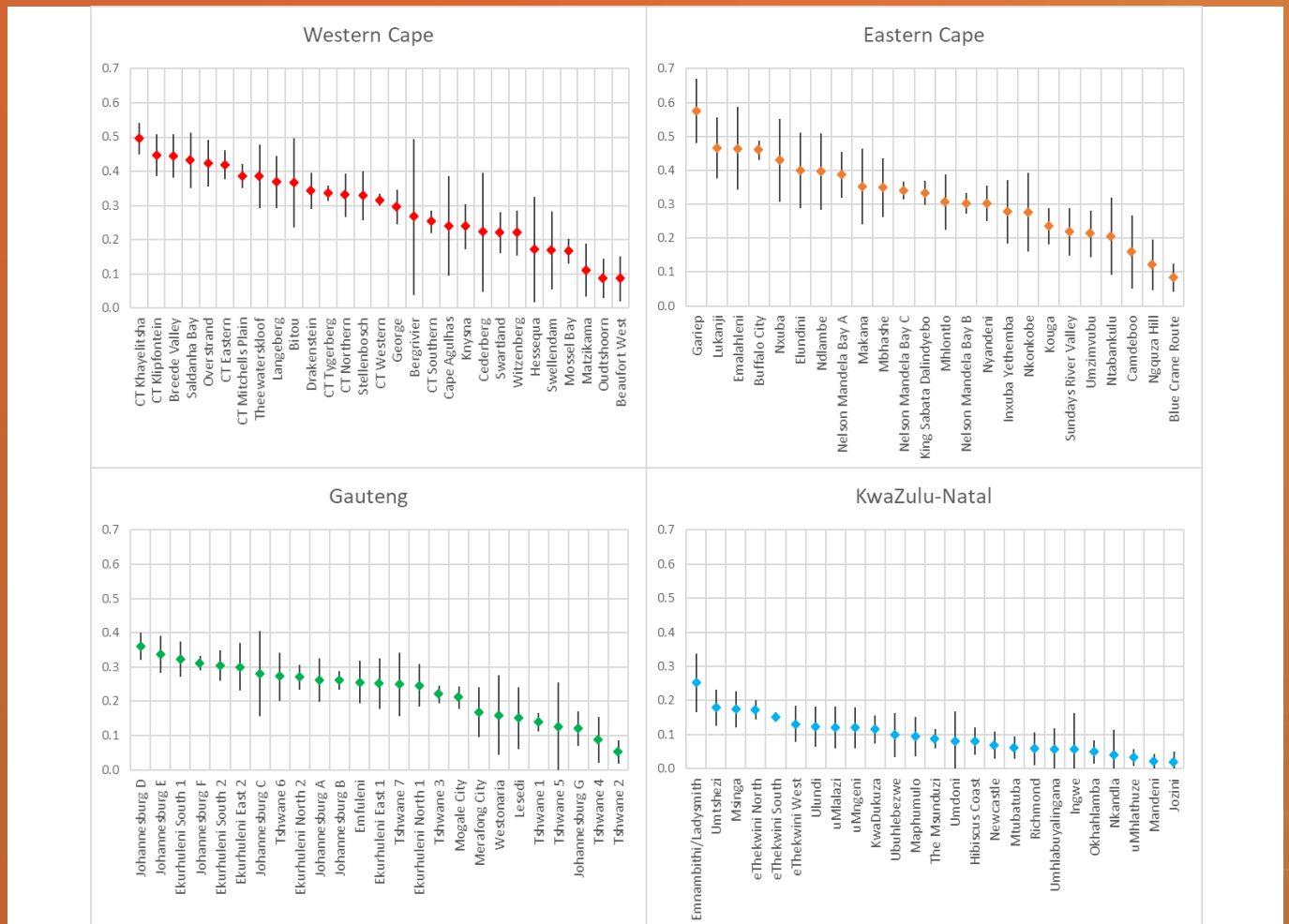


Figure 9. Health districts/sub-districts with a high proportion testing positive based on public sector data in Western Cape, Eastern Cape, Gauteng and KwaZulu-Natal provinces for the week of 21-27 June 2020

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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).

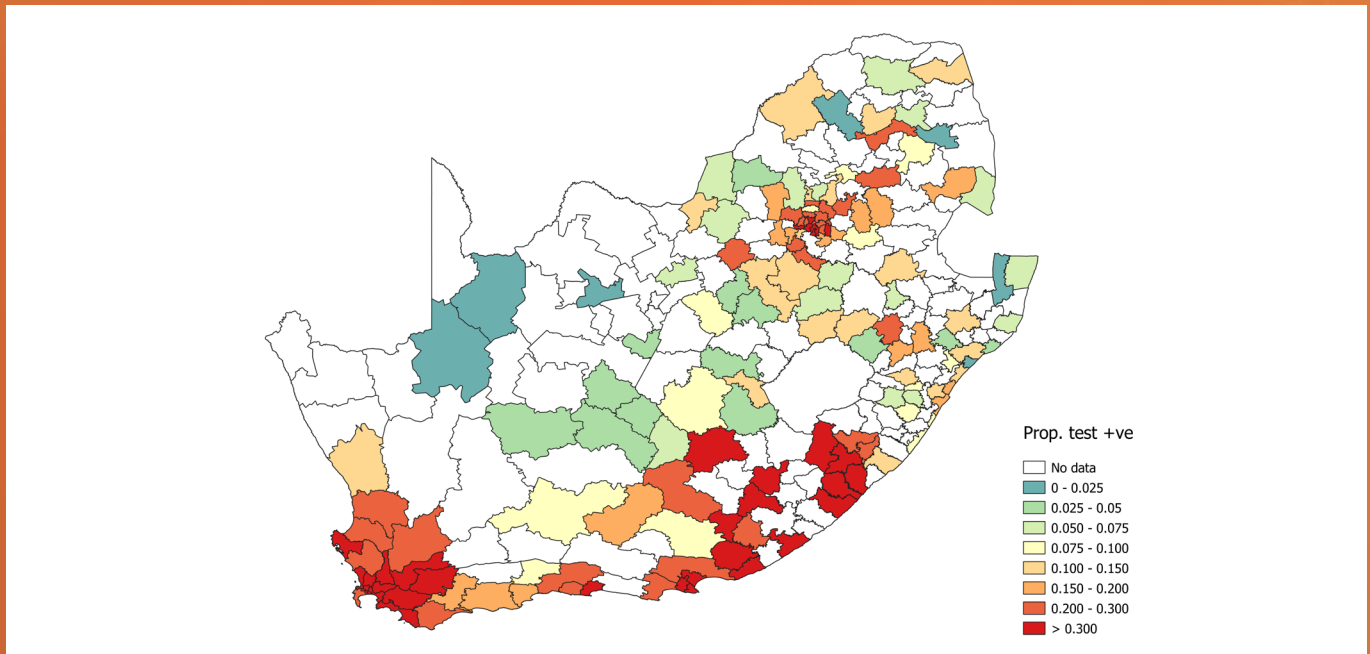


Figure 10. Proportion testing positive by health sub-district based on public sector data for the week of 21-27 June 2020, South Africa

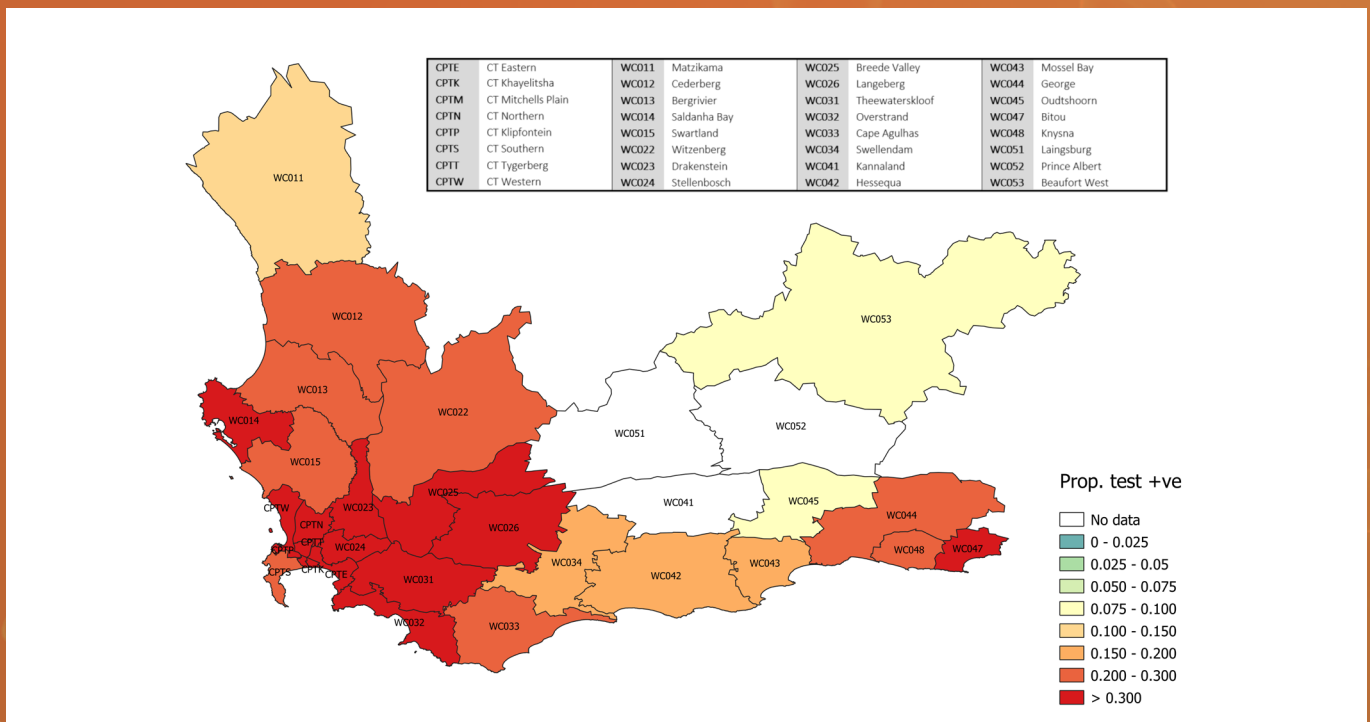


Figure 11. Health sub-districts in the Western Cape province with a high proportion testing positive based on public sector data for the week of 21-27 June 2020

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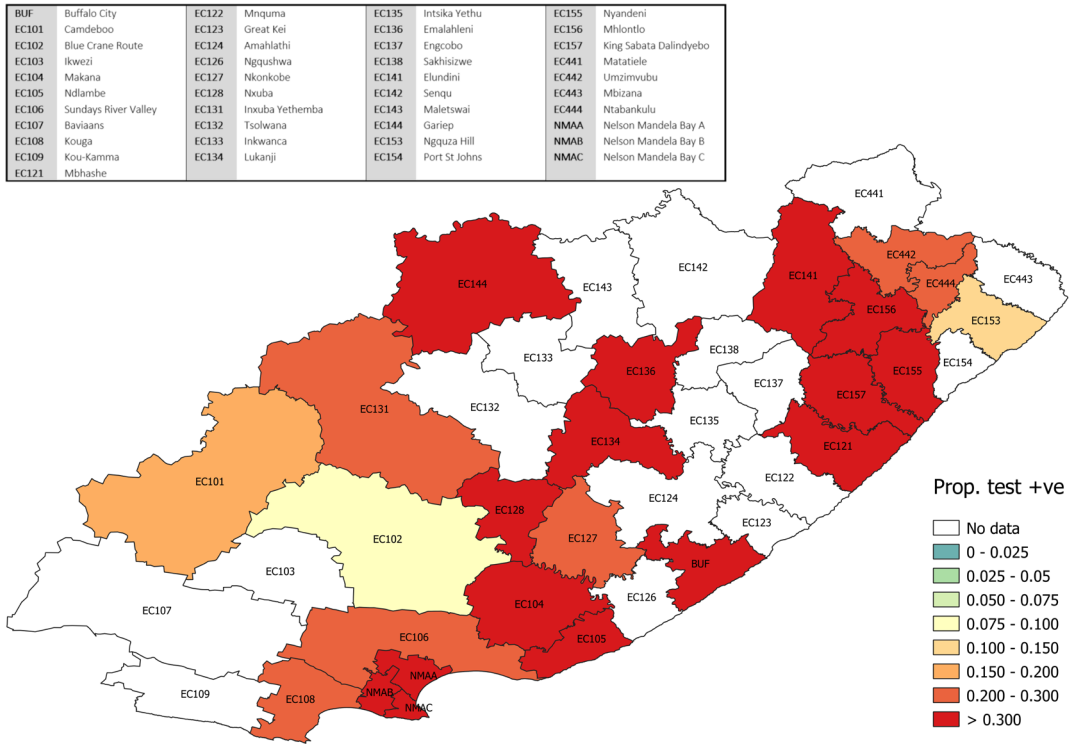


Figure 12. Health sub-districts in the Eastern Cape province with a high proportion testing positive based on public sector data for the week of 21-27 June 2020

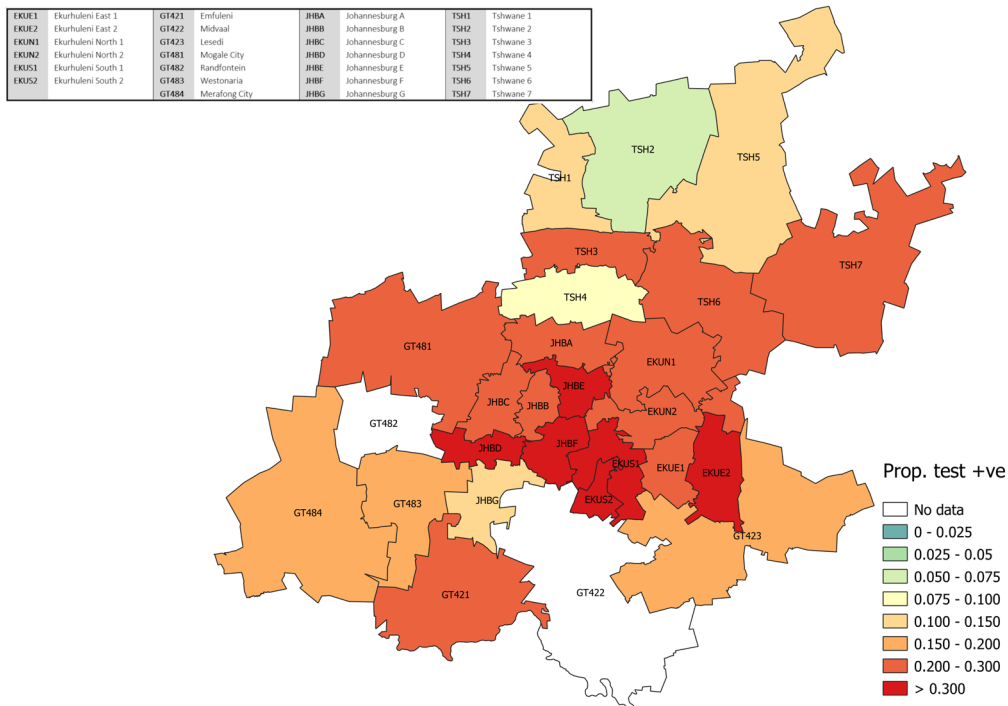


Figure 13. Health sub-districts in Gauteng Province with a high proportion testing positive based on public sector data for the week of 21-27 June 2020

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TESTING BY AGE AND SEX

In week 26, the majority of tests done (78%) remain in individuals aged 20-59 years, as for the previous two weeks (Figure 14). The mean age individuals tested in week 26 was 39.5 years and has remained relatively stable over the past 5 weeks in males and females. The mean age of cases in week 26 was 41.0 years and was similar in both sexes ($P=0.6$) (Table 7). The sex ratio (the number of males per 100 females) of cases was 76.9 in week 26. An increased proportion testing positive was observed for both males and females across all age groups in week 26 compared to the previous week (Figure 15).

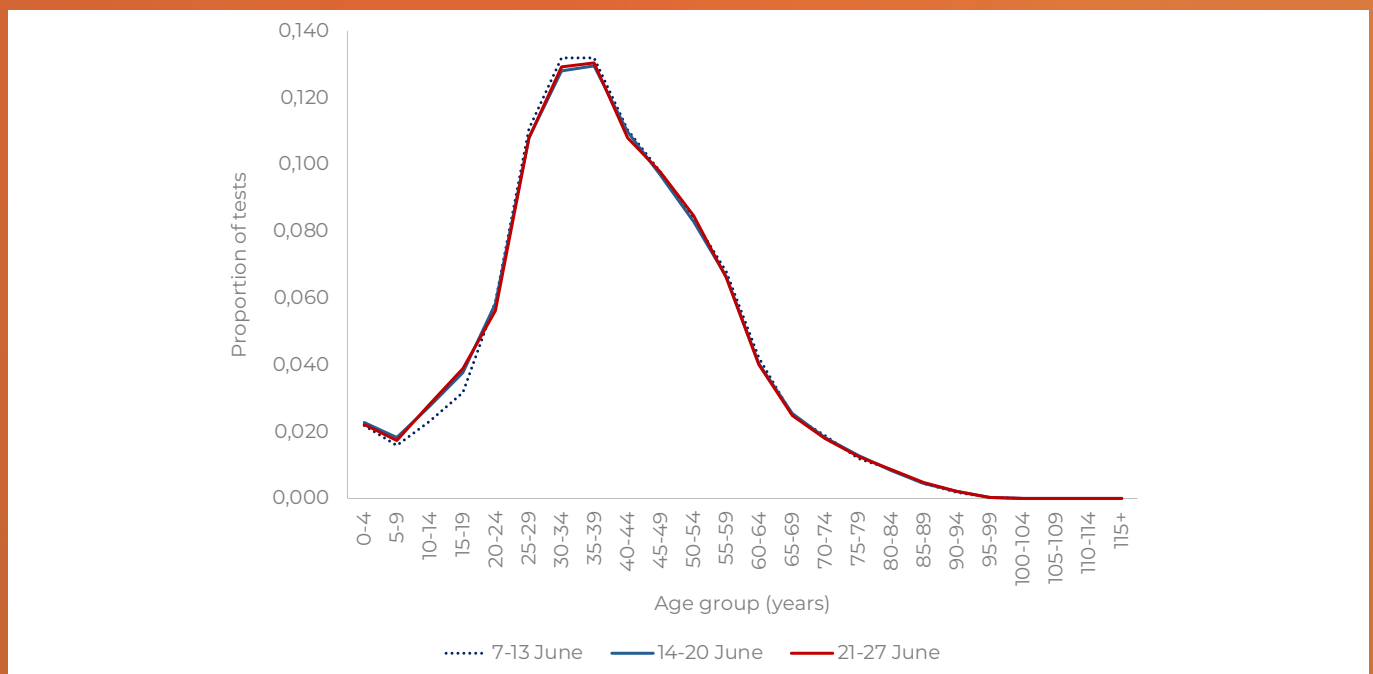


Figure 14. Proportion of tests performed by age group, 7-27 June 2020

Table 7. Mean age and sex ratio of individuals tested, South Africa, 31 May – 27 June 2020

Week number	Week beginning	Mean age of tested (years)		Mean age of cases (years)		Sex ratios (males / 100 females)	
		Males	Females	Males	Females	Tested	Cases
22	31 May	40.5	41.0	40.8	41.5	79.6	78.8
23	07 June	39.5	39.9	40.5	40.5	81.6	79.4
24	14 June	39.3	39.6	40.9	40.7	80.9	76.5
25	21 June	39.3	39.6	41.1	41.0	78.2	76.9

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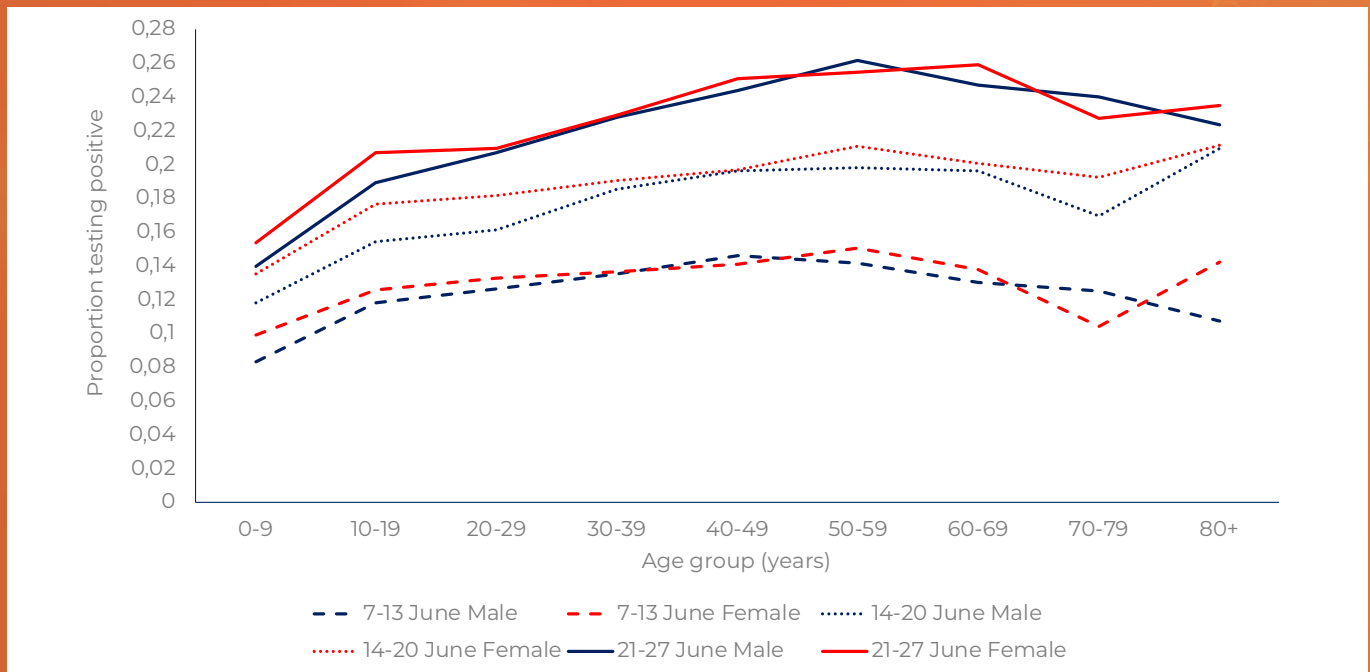


Figure 15. Weekly proportion testing positive by age group and sex, South Africa, 7-27 June 2020

From week 23 to week 26, the percentage testing positive increased significantly from 10.2% to 23.2% in females ($P < 0.001$) and from 10.0% to 22.8% in males ($P < 0.001$) (Table 8). In week 26 the proportion testing positive was higher in females than males in the <20-year ($P = 0.002$), but did not differ in other age groups.

Table 8. Percentage testing positive by sex and week, South Africa, 31 May – 27 June 2020

Age (years)	31 May-06 June		07-13 June		14-20 June		21-27 June	
	Male	Female	Male	Female	Male	Female	Male	Female
0-19	8.6%	9.0%	10.2%	11.6%	13.9%	16.2%	16.9%	18.9%
20-39	10.1%	10.0%	13.2%	13.5%	17.6%	18.7%	22.0%	22.1%
40-59	11.0%	10.7%	14.4%	14.5%	19.7%	20.3%	25.2%	25.2%
60-69	9.8%	10.5%	13.0%	13.8%	19.6%	20.1%	24.7%	25.9%
70+	7.0%	9.3%	12.1%	11.9%	18.0%	19.8%	23.4%	22.9%
Total	10.1%	10.2%	13.3%	13.6%	18.1%	19.1%	22.8%	23.2%

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.

CONCLUSIONS

Subsequent to the reduction in volume of tests performed due to limited availability of extraction and testing kits, there has been an improvement in testing volumes in recent weeks, although a reduction of testing was observed in the Western Cape Province likely due to updated testing strategies. The overall percentage testing positive continued to increase, to 23% in week 26, with increases observed in both the public and private sectors. While the Eastern Cape (32.6%) and Western Cape (29.3%) provinces continued to have the highest percentage testing positive, Gauteng, North West and KwaZulu-Natal provinces also had percentage testing positive of >15% and the percentage testing positive increased in all nine provinces. The percentage testing positive increased in both males and females across all age groups. Increased percentage testing positive may reflect true increases in the prevalence of disease but is likely also reflecting the implementation of more targeted testing of symptomatic individuals. Improvement in laboratory turnaround times in the public sector were observed since week 25 and continues in week 26, likely indicating a reduction in testing backlogs, implementation of updated testing strategies and improved supply of extraction and testing reagents.