

COVID-19 TESTING SUMMARY

SOUTH AFRICA

WEEK 24 2020

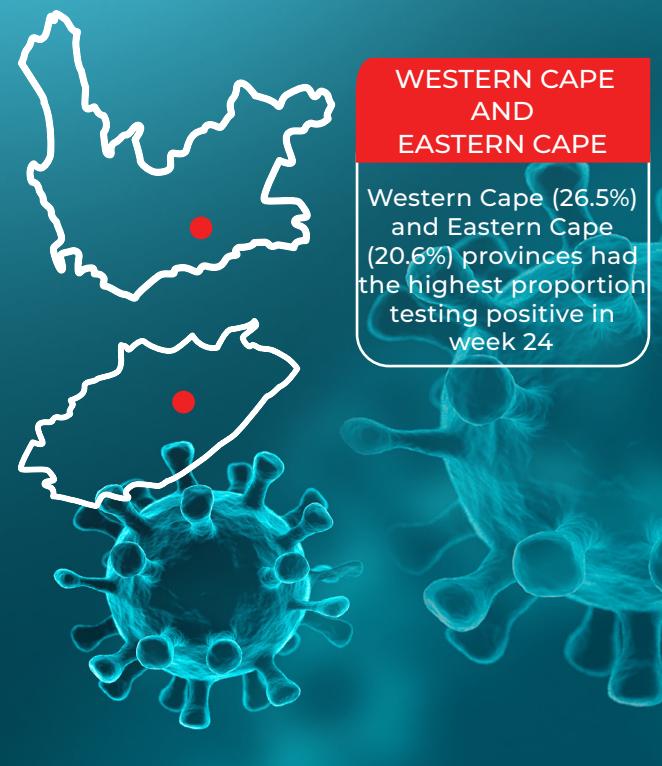
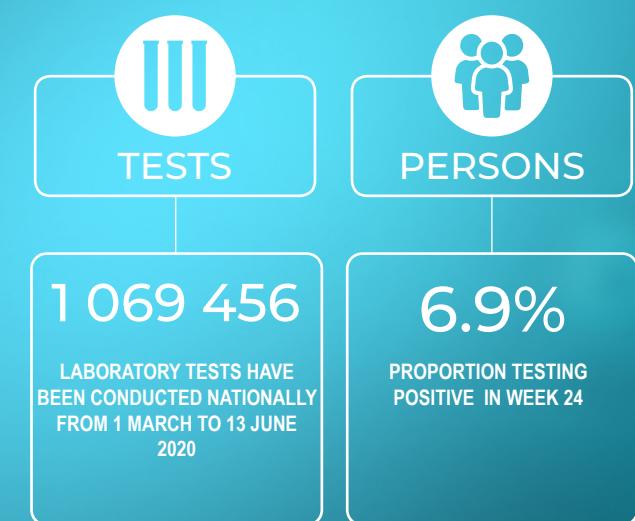
NATIONAL INSTITUTE FOR
COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

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 13 June 2020 (week 24 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 13 June 2020, 1 069 456 laboratory tests for SARS-CoV-2 have been conducted nationally
- There has been a decrease in laboratory testing volumes for SARS-CoV-2 in the past three weeks, likely due to the limited supply of extraction and testing kits
- Overall proportion testing positive was 6.9%. However, there continued to be an increase in the weekly proportion testing positive since week 18 to 14.5% in week 24 (7-13 June)
- Western Cape (26.5%) and Eastern Cape (20.6%) provinces continued to have the highest proportion testing positive in the past week, however increased proportions testing positive were observed in all nine provinces
- The proportion of community testing decreased over the past three weeks from 46.6% of public sector tests in week 22 to 33.6% in week 24
- The mean turnaround time in the public sector increased from 2.1 days to 12.4 days from week 20 to week 24, as a result of laboratory testing backlogs



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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. 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. Mass screening and testing has been discontinued from the week beginning 17 May, with the goal of using more targeted testing strategies, however there may be a lag in implementation in the provinces. 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. 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 13 June 2020 (week 24).

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TESTING VOLUMES AND PROPORTION TESTING POSITIVE

From 1 March through 13 June 2020, 1 069 456 laboratory tests for SARS-CoV-2 were conducted. The number of tests conducted increased week on week to week 21 when 146 210 tests were conducted, however has subsequently decreased in the past three weeks with 114 412 tests having been conducted in week 24. The decrease in the volume of testing conducted over the past three weeks is likely due to a limited supply of extraction and testing kits, and may also reflect reduced sample collection as a result of implementation of targeted testing. Due to backlogs in laboratory testing as a result of influx of specimens from community screening and limited testing kits, all tests for samples collected in previous weeks may not yet be reflected. Reduced testing volumes were observed over weekends and public holidays (Figure 1).

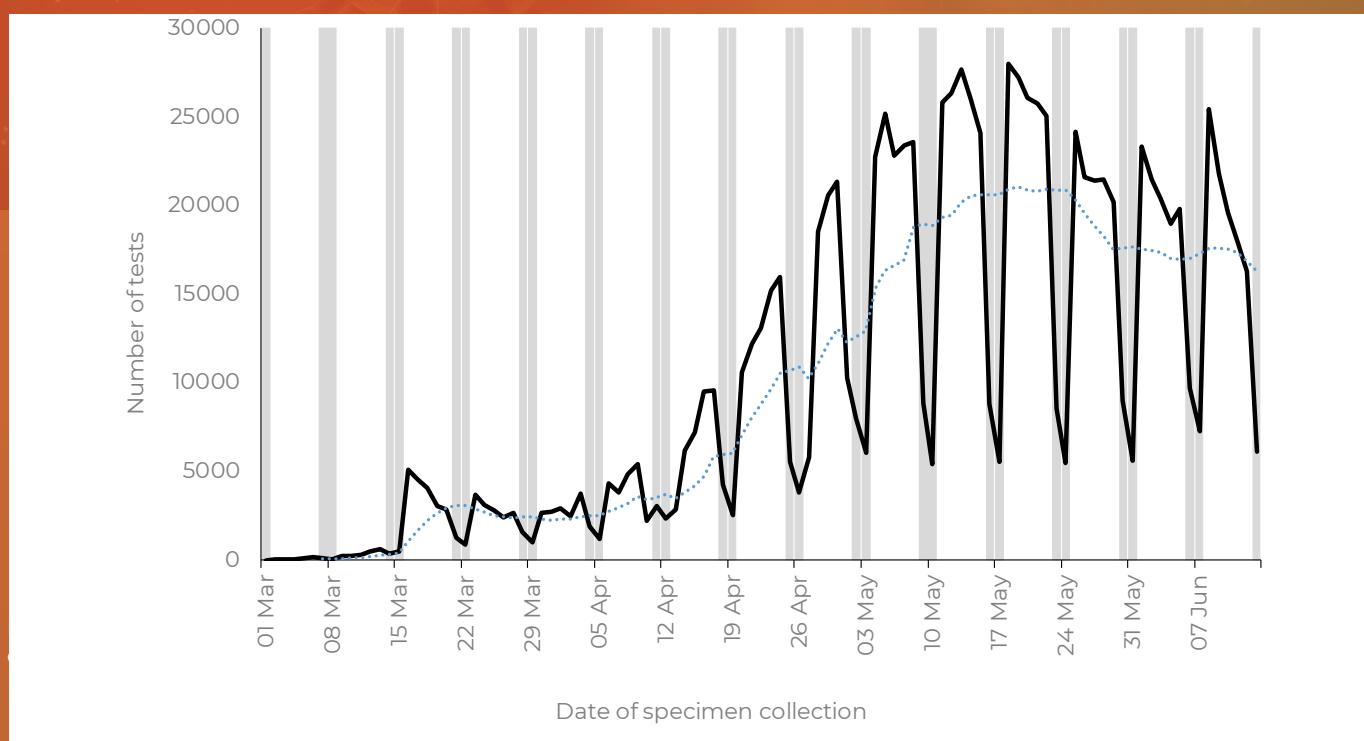


Figure 1. Number of laboratory tests conducted by date of specimen collection, South Africa, 1 March – 13 June 2020. Blue dotted line shows the 7-day moving average of the number of tests conducted. Grey bars highlight weekend days

The overall proportion testing positive from week 10 through 24 was 6.9% (Table 1). The proportion testing positive continued to increase week on week, and has increased from 9.5% in week 22, to 11.0% in week 23 and to 14.5% in week 24 ($P<0.001$) (Figure 2).

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Table 1. Weekly number of tests conducted and positive tests, South Africa, 1 March – 13 June 2020

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Proportion testing positive (%)
10	01 Mar	421 (0.0)	8	1.9
11	08 Mar	2 346 (0.2)	97	4.1
12	15 Mar	21 380 (2.0)	863	4.0
13	22 Mar	17 109 (1.6)	480	2.8
14	29 Mar	17 525 (1.6)	444	2.5
15	05 Apr	24 850 (2.3)	697	2.8
16	12 Apr	41 947 (3.9)	1 184	2.8
17	19 Apr	75 091 (7.0)	2 023	2.7
18	26 Apr	88 302 (8.3)	3 039	3.4
19	03 May	132 775 (12.4)	5 780	4.4
20	10 May	144 283 (13.5)	7 587	5.3
21	17 May	146 210 (13.7)	10 638	7.3
22	24 May	123 414 (11.5)	11 730	9.5
23	31 May	119 391 (11.2)	13 169	11.0
24	07 June	114 412 (10.7)	16 551	14.5
Total		1 069 456 (100)	74 290	6.9

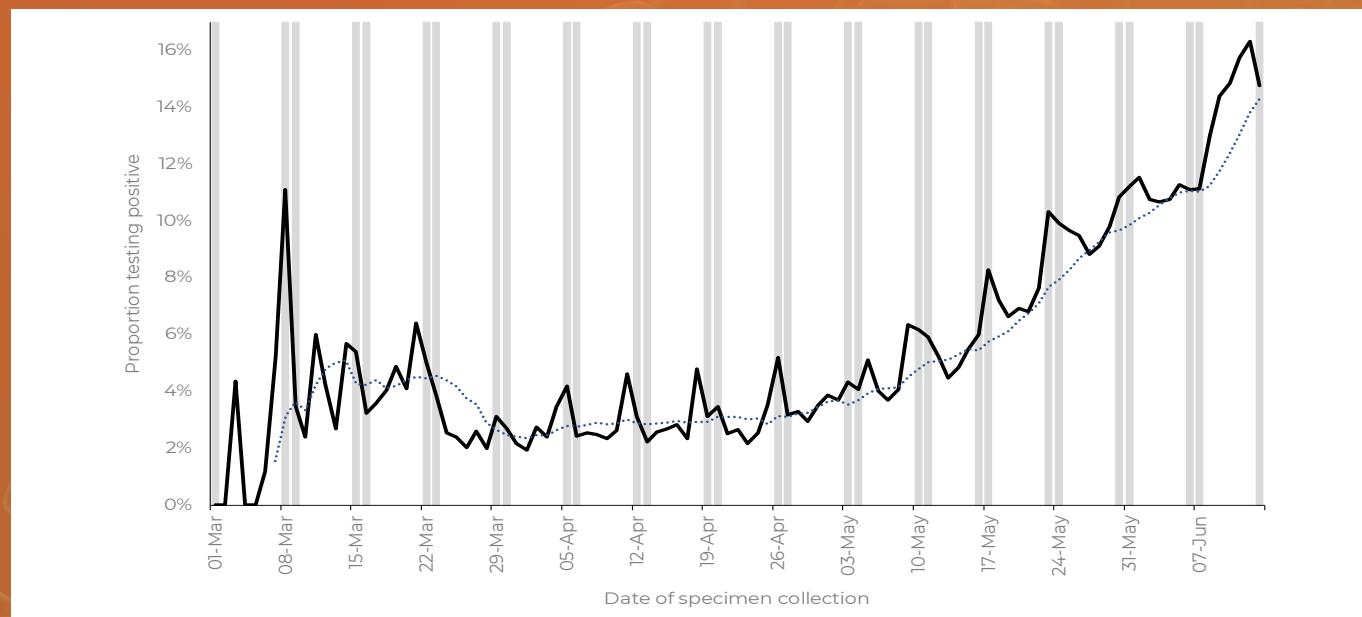


Figure 2. Proportion of laboratory tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March – 13 June 2020. Blue dotted line shows the 7-day moving average of the proportion testing positive. Grey bars highlight weekend days

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TESTING IN PRIVATE AND PUBLIC SECTORS

From 1 March through 13 June, 577 716 laboratory tests were conducted in public sector laboratories, with 6.4% testing positive. Over this same period, private sector laboratories conducted 491 740 tests, with 7.6% testing positive (Table 2). Overall the public sector has conducted 54.0% of tests and accounted for 50.0% of cases. The proportion testing positive continued to increase in both the public and private sectors in the past week, and was significantly higher in the public sector (14.9%) compared to the private sector (14.3%) in week 24 ($P=0.012$).

Table 2. Weekly number of tests conducted and positive tests, by healthcare sector, South Africa, 1 March – 13 June 2020

Week number	Week beginning	Public sector		Private sector		Public sector proportion of		Ratio of PTP ^a
		Tests	Cases n (%)	Tests	Cases n (%)	Tests (%)	Cases (%)	
10	01 Mar	285	7 (2.5)	136	1 (0.7)	67.7	87.5	3.340
11	08 Mar	383	21 (5.5)	1 963	76 (3.9)	16.3	21.6	1.416
12	15 Mar	1 417	68 (4.8)	19 963	795 (4.0)	6.6	7.9	1.205
13	22 Mar	3 424	127 (3.7)	13 685	353 (2.6)	20.0	26.5	1.438
14	29 Mar	5 711	169 (3.0)	11 814	275 (2.3)	32.6	38.1	1.271
15	05 Apr	11 521	382 (3.3)	13 329	315 (2.4)	46.4	54.8	1.403
16	12 Apr	24 022	645 (2.7)	17 925	539 (3.0)	57.3	54.5	0.893
17	19 Apr	54 734	1 548 (2.8)	20 357	475 (2.3)	72.9	76.5	1.212
18	26 Apr	66 236	2 387 (3.6)	22 066	652 (3.0)	75.0	78.5	1.220
19	03 May	90 625	4 410 (4.9)	42 150	1 370 (3.3)	68.3	76.3	1.497
20	10 May	95 111	5 219 (5.5)	49 172	2 368 (4.8)	65.9	68.8	1.139
21	17 May	88 402	6 535 (7.4)	57 808	4 103 (7.1)	60.5	61.4	1.042
22	24 May	58 965	5 675 (9.6)	64 449	6 055 (9.4)	47.8	48.4	1.024
23	31 May	47 036	5 514 (11.7)	72 355	7 655 (10.6)	39.4	41.9	1.108
24	07 June	29 844	4 448 (14.9)	84 568	12 103 (14.3)	26.1	26.9	1.041
Total		577 716	37 155 (6.4)	491 740	37 135 (7.6)	54.0	50.0	0.852

^aRatio 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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Laboratory delays are indicated by an increase in the mean number of days between specimen collection and reporting of the results over the past weeks, predominantly in the public sector. The mean turnaround time in the public sector increased from 2.1 days to 12.4 days from week 20 to week 24 (Figure 3). This is likely due to testing of backlogged specimens. The turnaround time in the private sector remained <2 days over this same period. Among tests conducted in the public sector in the five provinces conducting the largest volumes of tests, the turnaround time increased in the past week in the Western Cape, Gauteng and KwaZulu-Natal provinces, while the turnaround time decreased in the Eastern Cape and Free State provinces (Figure 4). The number of tests conducted varied widely by public sector laboratory ranging from 14 to 12 464 tests in week 24 (median of 3428 tests), depending on the testing platform being used. Of the 20 NHLS laboratories conducting SARS-CoV-2 testing, 18 had turnaround times >48 hours in the past week (Figure 5). Improvements in turnaround times were noted in 9 of the 20 NHLS laboratories in week 24 compared to the previous week.

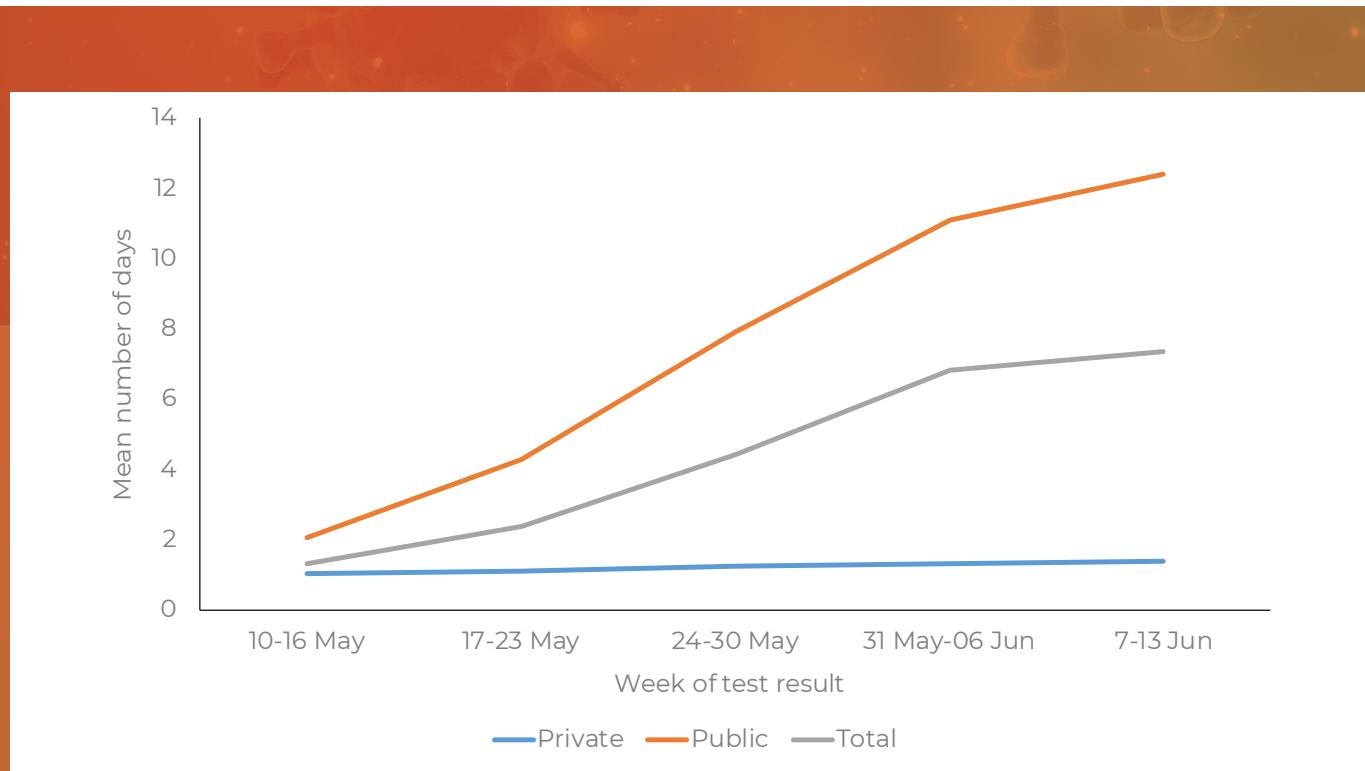


Figure 3. Mean number of days between date of specimen collection and date of test result, by week of test result, South Africa, 10 May – 13 June 2020

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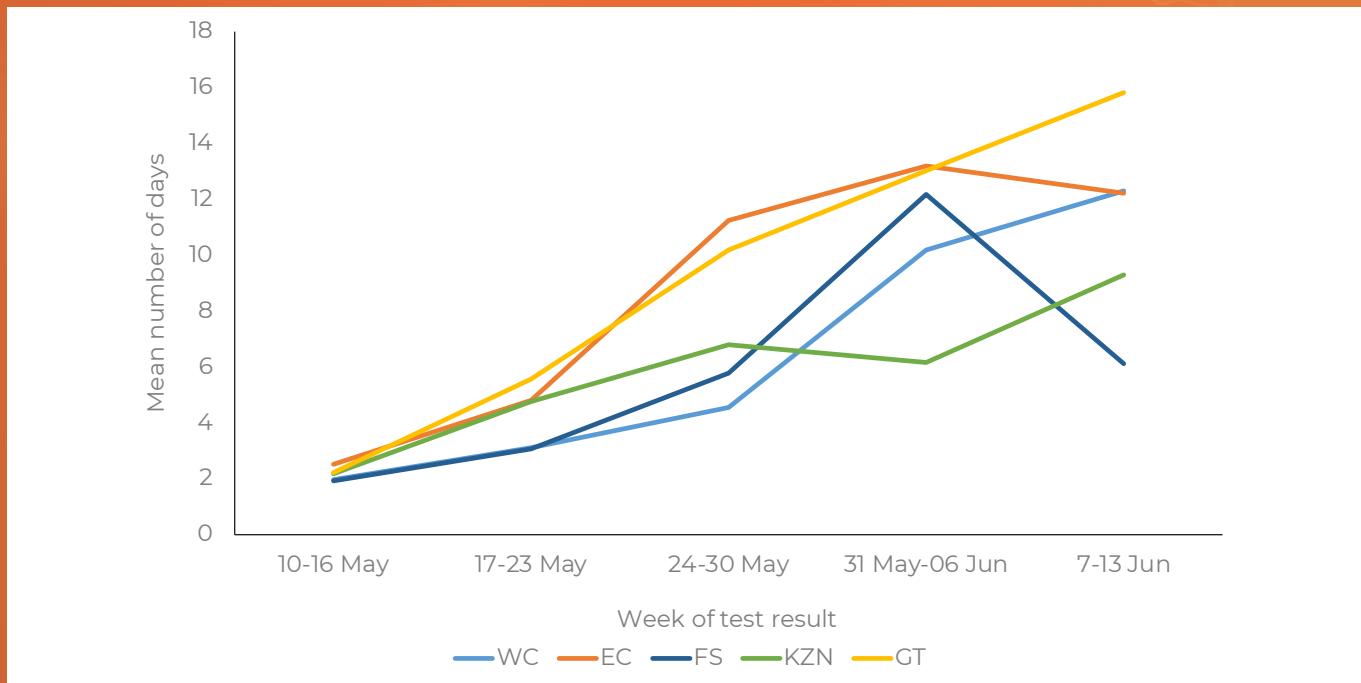


Figure 4. Mean number of days between date of specimen collection and date of test result, by week of test result and province, South Africa, 10 May – 13 June 2020. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal, GT, Gauteng

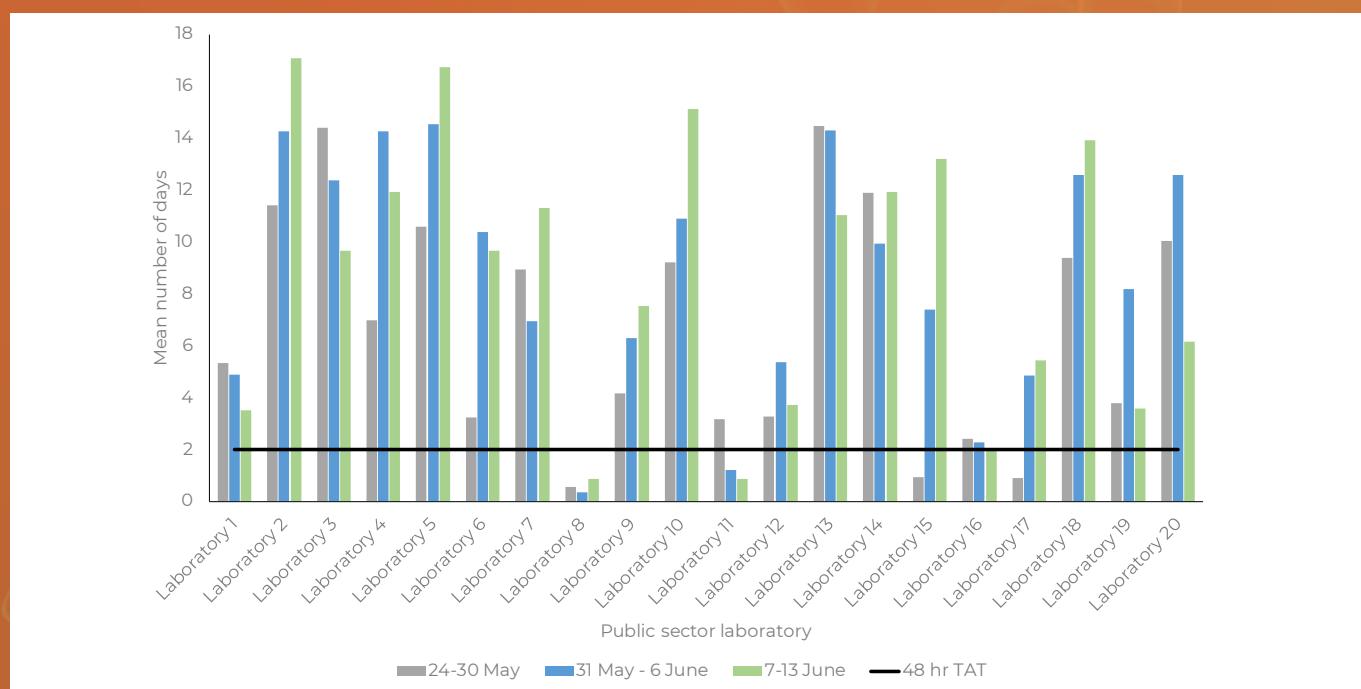


Figure 5. Mean number of days between date of specimen collection and date of test result, by public sector laboratory, 24 May – 13 June 2020. The horizontal black line indicates 48-hour turnaround time (TAT)

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TESTING BY PROVINCE

In the past week Western Cape and Gauteng provinces performed the largest numbers of tests, accounting for 58.4% of tests nationally (Table 3). Five provinces including Western Cape, Eastern Cape, Free State, KwaZulu-Natal and Gauteng performed 88.7% of tests in week 24. Western Cape (26.5%) and Eastern Cape (20.6%) provinces continued to have the highest proportion testing positive in week 24 (Figure 6). In addition, Gauteng and North West provinces each had proportion testing positive of >10% in the past week. Over the past three weeks, the proportion testing positive has increased significantly in all 9 provinces (Western Cape ($P<0.001$), Eastern Cape ($P<0.001$), Northern Cape ($P<0.001$), 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 proportion testing positive was higher than the national average, not weighted for population size, in the Western Cape and Eastern Cape provinces (Figure 6).

Table 3. Weekly number of tests performed and positive tests, by province, South Africa, 24 May – 13 June 2020

Province	24-30 May		31 May-06 June		07-13 June	
	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	33 858	7 836 (23.1)	3 0753	7 583 (24.7)	24 020	6 374 (26.5)
Eastern Cape	14 303	1 550 (10.8)	13 108	2 134 (16.3)	14 130	2 908 (20.6)
Northern Cape	1 042	12 (1.2)	1 033	22 (2.1)	1 084	78 (7.2)
Free State	7 818	98 (1.3)	8 463	101 (1.2)	6 596	159 (2.4)
KwaZulu-Natal	19 189	796 (4.1)	18 206	632 (3.5)	13 931	640 (4.6)
North West	2 383	88 (3.7)	3 054	225 (7.4)	3 669	397 (10.8)
Gauteng	37 539	1 119 (3.0)	37 191	2 176 (5.9)	42 767	5 500 (12.9)
Mpumalanga	3 375	92 (2.7)	3 604	163 (4.5)	4 108	243 (5.9)
Limpopo	3 031	18 (0.6)	2 623	30 (1.1)	1 902	86 (4.5)
Unknown	876	121 (13.8)	1 356	103 (7.6)	2 205	166 (7.5)
Total	123 414	11 730 (9.5)	119 391	13 169 (11.0)	114 412	16 551 (14.5)

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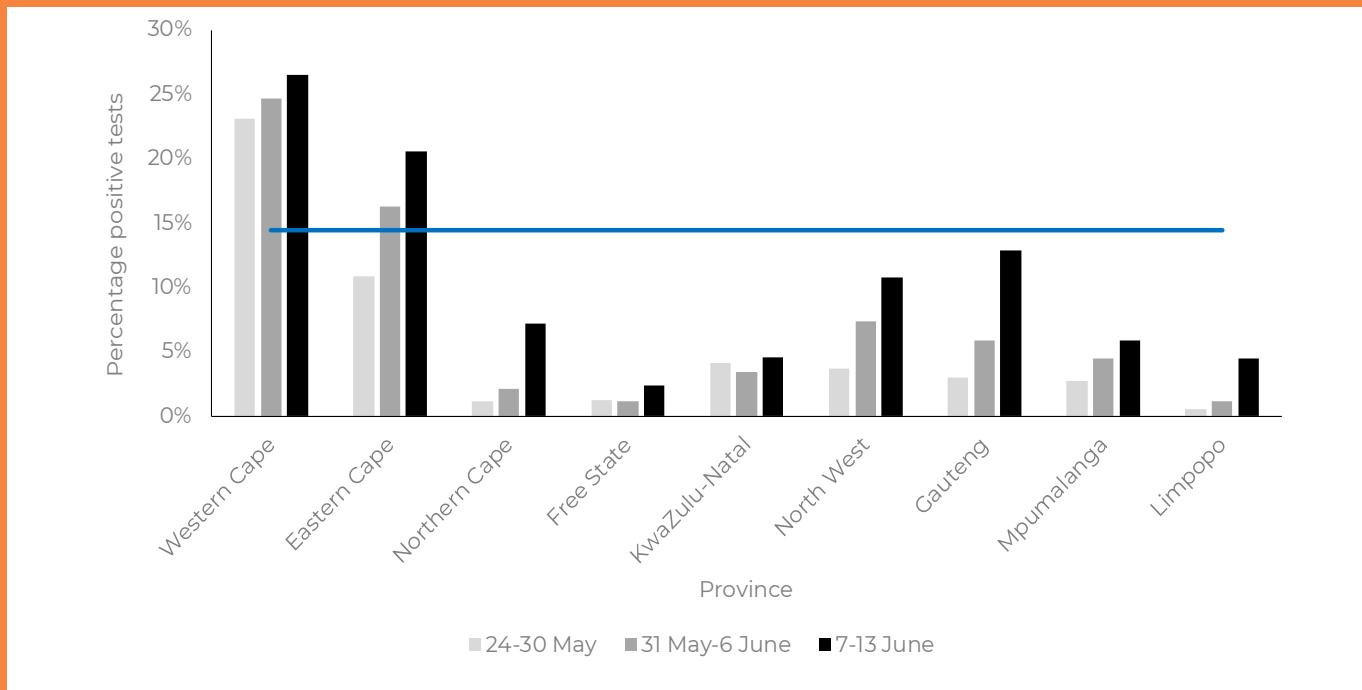


Figure 6. Weekly proportion testing positive, by province, South Africa, 24 May – 13 June 2020. The horizontal blue line shows the national average for week 24, beginning 7 June 2020

TESTING IN THE PUBLIC SECTOR

In the public sector, the proportion testing positive increased to 14.9% in week 24 (Table 4). The proportion testing positive was highest in the Western Cape (32.8%) and Eastern Cape (20.2%) provinces. The proportion testing positive in the public sector remains higher than the national average, not weighted for population size, in the Western Cape and Eastern Cape provinces (Figure 7).

Table 4. Weekly number of tests conducted and positive tests in the public sector, by province, South Africa, 24 May – 13 June 2020

Province	24-30 May		31 May-06 June		07-13 June	
	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	14 584	4 378 (30.0)	11 630	3 614 (31.1)	7 369	2 415 (32.8)
Eastern Cape	8 128	714 (8.8)	6 191	1 034 (16.7)	4 978	1 006 (20.2)
Northern Cape	8	0 (0.0)	4	0 (0.0)	2	0 (0.0)
Free State	5 930	64 (1.1)	6 543	58 (0.9)	4 561	88 (1.9)

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KwaZulu-Natal	10 408	195 (1.9)	9 375	309 (3.3)	5 074	215 (4.2)
North West	460	7 (1.5)	624	53 (8.5)	598	55 (9.2)
Gauteng	16 975	310 (1.8)	11 016	441 (4.0)	6 663	664 (10.0)
Mpumalanga	583	2 (0.3)	244	0 (0.0)	35	0 (0.0)
Limpopo	1 889	5 (0.3)	1 409	5 (0.4)	564	5 (0.9)
Total	58965	5 675 (9.6)	4 7036	5 514 (11.7)	29 844	4 448 (14.9)

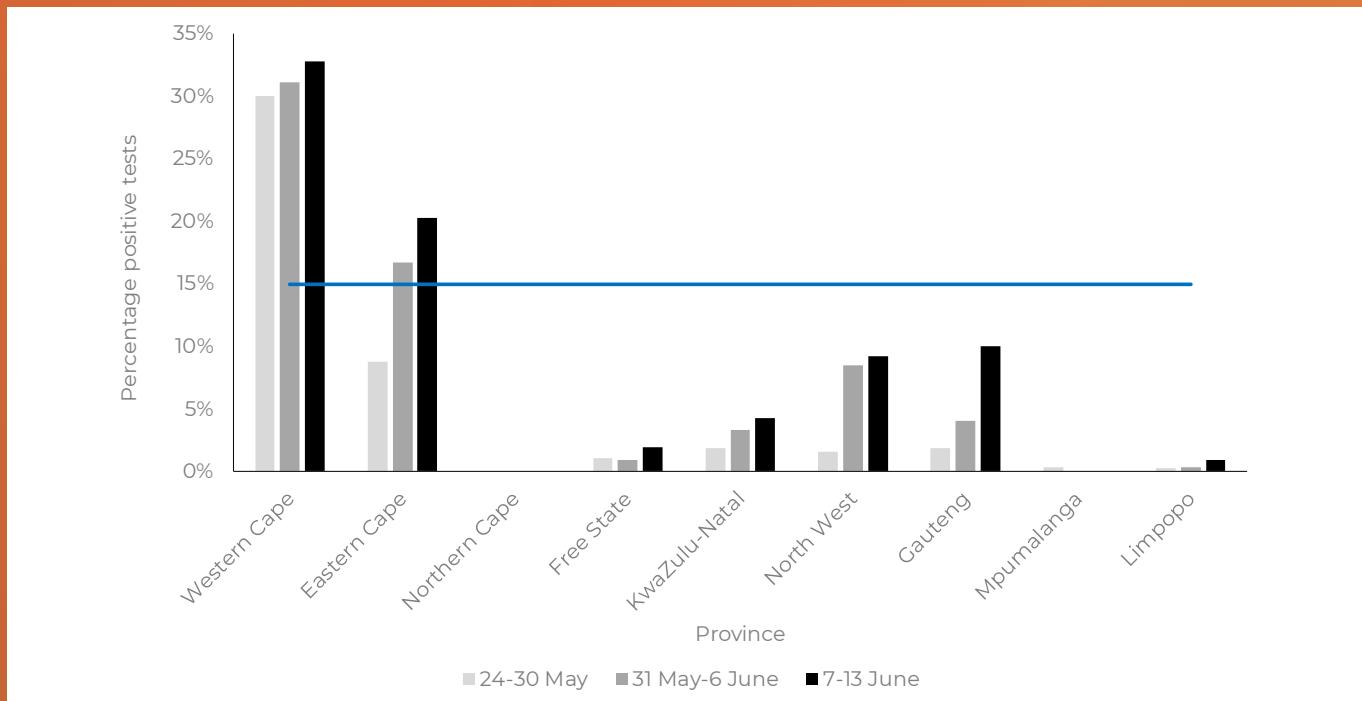


Figure 7. Weekly proportion testing positive in the public sector, by province, South Africa, 24 May – 13 June 2020. The horizontal blue line shows the national average for week 24, beginning 7 June 2020

The proportion of community testing in the public sector decreased over the past three weeks (46.6% in week 22, 42.1% in week 23 and 33.6% in week 24, $P<0.001$), with decreases noted in the past week in all five provinces where the largest volume of tests were performed (Figure 8). This likely reflects the change in policy in mid-May to discontinue mass screening and testing approaches. The proportion testing positive in community testing varied widely by province, likely reflecting different approaches in the provinces. The proportion testing positive in the Western Cape in week 24 was 31.2% and had remained relatively stable in the past 3 weeks ($p=0.903$) (Figure 9). The proportion testing positive in community testing increased significantly over the past three weeks in the Eastern Cape (8.4% to 19.5%, $P<0.001$), Free State (1.1% to 2.9%, $P<0.001$), KwaZulu-Natal (1.4% to 4.8%, $P<0.001$), North West (1.0% to 12.7%, $P<0.001$) and Gauteng (1.8% to 7.0%, $P<0.001$) provinces.

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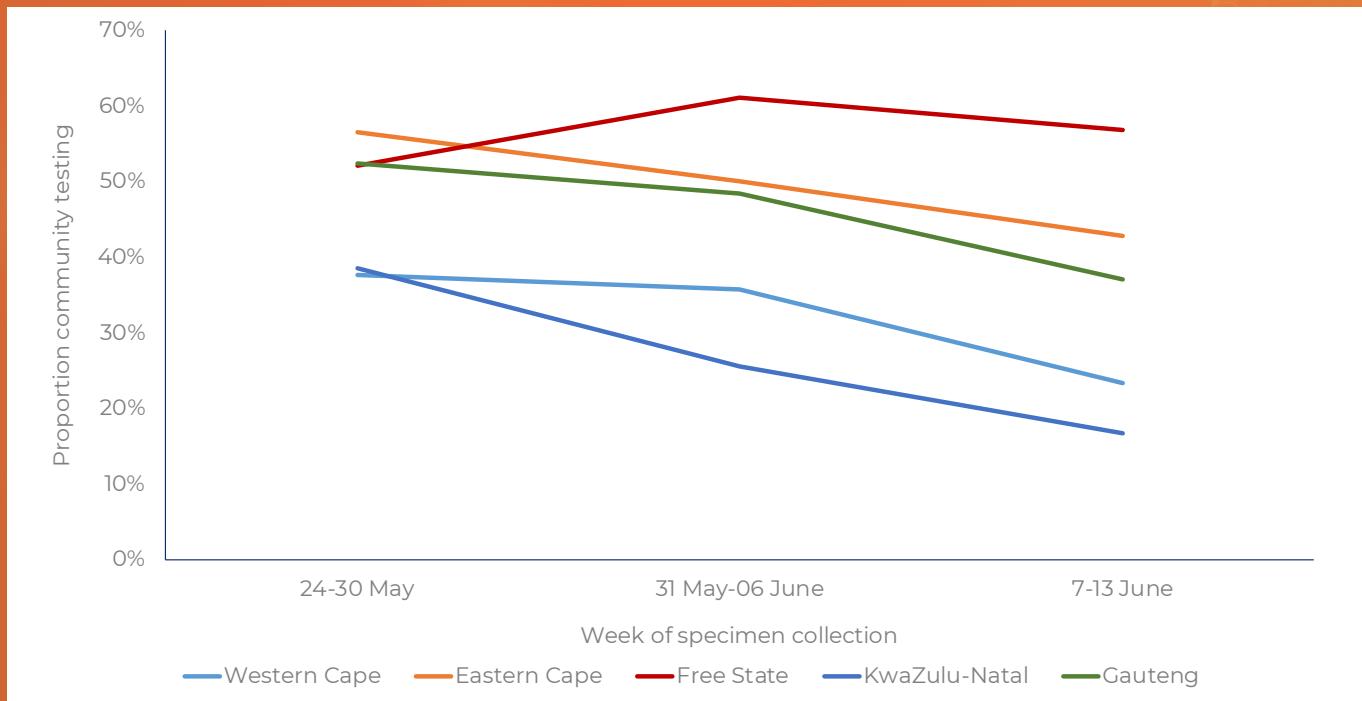


Figure 8. Weekly proportion of tests resulting from public sector community testing, by province, South Africa, 24 May-13 June 2020

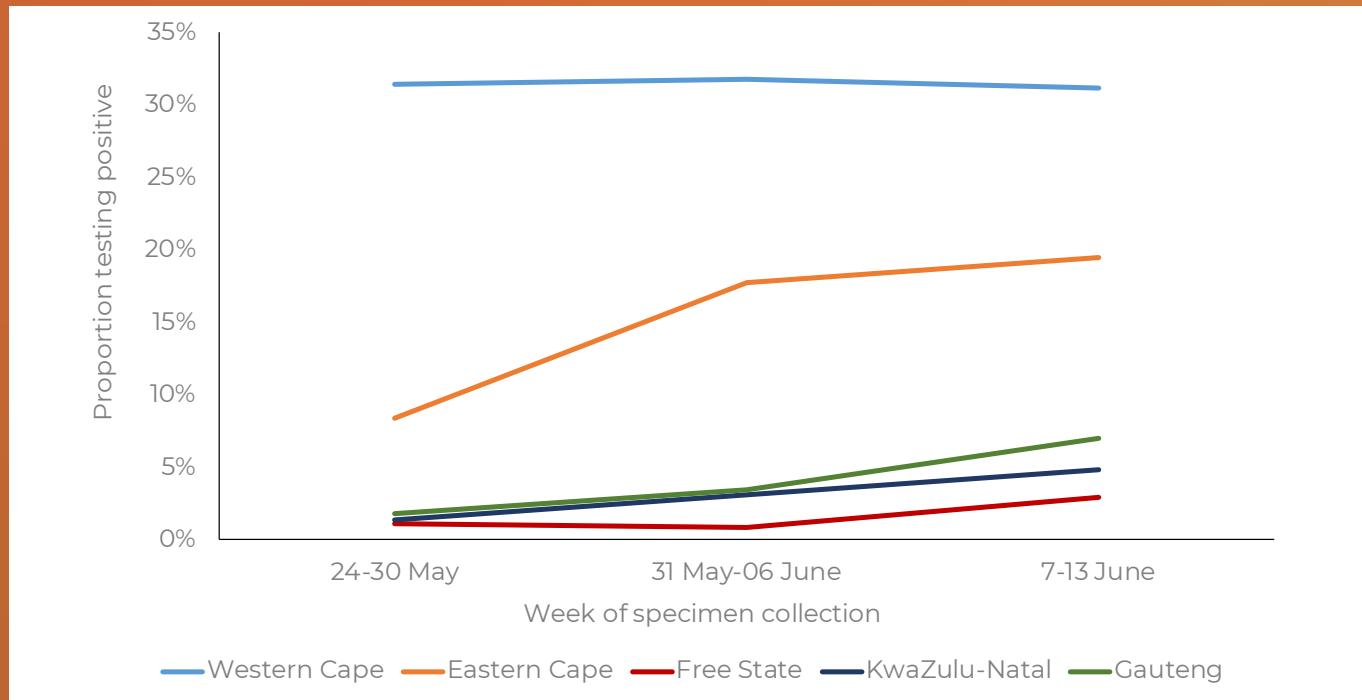


Figure 9. Weekly proportion testing positive in community testing in the public sector, by province, South Africa, 24 May-13 June 2020

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PUBLIC FACILITIES WITH HIGH PROPORTIONS TESTING POSITIVE

Table 5 shows anonymised public healthcare facilities that tested ≥ 25 specimens, had ≥ 5 positive tests and had the highest proportion testing positive ($>10\%$) in the week of 7-13 June. Of 108 facilities, the majority are in the Western Cape (51/108, 47%), Eastern Cape (30/108, 28%) and Gauteng (19/108, 18%) provinces.

Table 5. Public healthcare facilities with a high proportion testing positive, 7-13 June 2020

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Western Cape	33	0.848 (0.726;0.971)
Facility 2	Western Cape	34	0.706 (0.553;0.859)
Facility 3	Western Cape	42	0.619 (0.472;0.766)
Facility 4	Western Cape	25	0.560 (0.365;0.755)
Facility 5	Western Cape	223	0.534 (0.468;0.599)
Facility 6	Western Cape	60	0.533 (0.407;0.660)
Facility 7	Western Cape	34	0.529 (0.362;0.697)
Facility 8	Western Cape	262	0.477 (0.417;0.538)
Facility 9	Western Cape	60	0.467 (0.340;0.593)
Facility 10	Western Cape	50	0.440 (0.302;0.578)
Facility 11	Western Cape	85	0.435 (0.330;0.541)
Facility 12	Gauteng	30	0.433 (0.256;0.611)
Facility 13	Western Cape	60	0.433 (0.308;0.559)
Facility 14	Western Cape	70	0.429 (0.313;0.545)
Facility 15	Western Cape	26	0.423 (0.233;0.613)
Facility 16	Western Cape	36	0.417 (0.256;0.578)
Facility 17	Western Cape	53	0.415 (0.282;0.548)
Facility 18	Eastern Cape	46	0.413 (0.271;0.555)
Facility 19	Eastern Cape	102	0.412 (0.316;0.507)
Facility 20	Western Cape	112	0.402 (0.311;0.493)

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Facility 21	Western Cape	40	0.400 (0.248;0.552)
Facility 22	Western Cape	416	0.397 (0.350;0.444)
Facility 23	Western Cape	150	0.393 (0.315;0.472)
Facility 24	Western Cape	59	0.390 (0.265;0.514)
Facility 25	Western Cape	160	0.388 (0.312;0.463)
Facility 26	Western Cape	44	0.386 (0.242;0.530)
Facility 27	Western Cape	143	0.378 (0.298;0.457)
Facility 28	Western Cape	25	0.360 (0.172;0.548)
Facility 29	Western Cape	380	0.355 (0.307;0.403)
Facility 30	Western Cape	52	0.346 (0.217;0.475)
Facility 31	Western Cape	542	0.341 (0.301;0.381)
Facility 32	Western Cape	400	0.335 (0.289;0.381)
Facility 33	Eastern Cape	132	0.326 (0.246;0.406)
Facility 34	Western Cape	40	0.325 (0.180;0.470)
Facility 35	Eastern Cape	80	0.325 (0.222;0.428)
Facility 36	Western Cape	74	0.324 (0.218;0.431)
Facility 37	Western Cape	34	0.324 (0.166;0.481)
Facility 38	Western Cape	59	0.322 (0.203;0.441)
Facility 39	Western Cape	97	0.320 (0.227;0.412)
Facility 40	Western Cape	57	0.316 (0.195;0.436)
Facility 41	Western Cape	105	0.314 (0.225;0.403)
Facility 42	Western Cape	576	0.311 (0.273;0.349)
Facility 43	Western Cape	300	0.307 (0.254;0.359)
Facility 44	Western Cape	69	0.304 (0.196;0.413)
Facility 45	Eastern Cape	33	0.303 (0.146;0.460)
Facility 46	Western Cape	38	0.289 (0.145;0.434)
Facility 47	Western Cape	76	0.289 (0.188;0.391)
Facility 48	Eastern Cape	326	0.288 (0.239;0.338)
Facility 49	Eastern Cape	39	0.282 (0.141;0.423)
Facility 50	Western Cape	107	0.280 (0.195;0.365)
Facility 51	Eastern Cape	175	0.280 (0.213;0.347)

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Facility 52	Gauteng	43	0.279 (0.145;0.413)
Facility 53	Gauteng	77	0.273 (0.173;0.372)
Facility 54	Western Cape	33	0.273 (0.121;0.425)
Facility 55	KwaZulu-Natal	26	0.269 (0.099;0.440)
Facility 56	Western Cape	26	0.269 (0.099;0.440)
Facility 57	Western Cape	79	0.266 (0.168;0.363)
Facility 58	Eastern Cape	80	0.263 (0.166;0.359)
Facility 59	Eastern Cape	50	0.260 (0.138;0.382)
Facility 60	Gauteng	54	0.259 (0.142;0.376)
Facility 61	Gauteng	1219	0.247 (0.223;0.272)
Facility 62	Western Cape	148	0.243 (0.174;0.312)
Facility 63	Eastern Cape	72	0.236 (0.138;0.334)
Facility 64	Gauteng	77	0.234 (0.139;0.328)
Facility 65	Gauteng	100	0.230 (0.148;0.312)
Facility 66	Eastern Cape	35	0.229 (0.089;0.368)
Facility 67	Eastern Cape	66	0.227 (0.126;0.328)
Facility 68	Western Cape	54	0.222 (0.111;0.333)
Facility 69	Eastern Cape	181	0.221 (0.161;0.281)
Facility 70	Eastern Cape	68	0.221 (0.122;0.319)
Facility 71	Gauteng	32	0.219 (0.076;0.362)
Facility 72	Western Cape	46	0.217 (0.098;0.337)
Facility 73	Eastern Cape	107	0.215 (0.137;0.293)
Facility 74	Eastern Cape	52	0.212 (0.101;0.323)
Facility 75	Western Cape	88	0.205 (0.120;0.289)
Facility 76	Western Cape	103	0.204 (0.126;0.282)
Facility 77	Eastern Cape	310	0.203 (0.158;0.248)
Facility 78	Eastern Cape	128	0.203 (0.133;0.273)
Facility 79	Northern Cape	25	0.200 (0.043;0.357)
Facility 80	Gauteng	175	0.189 (0.131;0.247)
Facility 81	Eastern Cape	54	0.185 (0.082;0.289)

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Facility 82	Gauteng	81	0.185 (0.101;0.270)
Facility 83	Eastern Cape	181	0.182 (0.126;0.239)
Facility 84	Eastern Cape	33	0.182 (0.050;0.313)
Facility 85	Eastern Cape	101	0.178 (0.104;0.253)
Facility 86	Gauteng	74	0.176 (0.089;0.262)
Facility 87	Gauteng	80	0.175 (0.092;0.258)
Facility 88	Eastern Cape	153	0.170 (0.110;0.229)
Facility 89	Free State	78	0.167 (0.084;0.249)
Facility 90	Eastern Cape	36	0.167 (0.045;0.288)
Facility 91	Eastern Cape	144	0.167 (0.106;0.228)
Facility 92	Free State	50	0.160 (0.058;0.262)
Facility 93	Gauteng	44	0.159 (0.051;0.267)
Facility 94	Eastern Cape	27	0.148 (0.014;0.282)
Facility 95	Gauteng	132	0.144 (0.084;0.204)
Facility 96	Eastern Cape	50	0.140 (0.044;0.236)
Facility 97	Eastern Cape	51	0.137 (0.043;0.232)
Facility 98	Eastern Cape	45	0.133 (0.034;0.233)
Facility 99	Gauteng	77	0.130 (0.055;0.205)
Facility 100	Gauteng	96	0.125 (0.059;0.191)
Facility 101	KwaZulu-Natal	71	0.113 (0.039;0.186)
Facility 102	Gauteng	81	0.111 (0.043;0.180)
Facility 103	Gauteng	37	0.108 (0.008;0.208)
Facility 104	NorthWest	93	0.108 (0.045;0.170)
Facility 105	Western Cape	75	0.107 (0.037;0.177)
Facility 106	Gauteng	66	0.106 (0.032;0.180)
Facility 107	KwaZulu-Natal	78	0.103 (0.035;0.170)
Facility 108	KwaZulu-Natal	59	0.102 (0.025;0.179)

*Colour coding is used to demarcate PTP bands ($\geq 30\%$; $20\%-29\%$; $15\%-19\%$; and $10\%-14\%$) 95% CI: 95% confidence interval; PTP: positive test proportion

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PUBLIC SECTOR TESTING: HEALTH DISTRICT-LEVEL RESULTS

Table 6 and Figure 10 show health districts/sub-districts with high adjusted proportion testing positive (>5%) for the week of 7-13 June. The adjusted proportion testing positive exceeded 20% in 16 districts and health sub-districts in the Western Cape, 10 in the Eastern Cape and 1 in Gauteng. The proportion testing positive increased significantly in eleven districts and health sub-districts in Gauteng (Ekurhuleni North 1, Johannesburg A, Ekurhuleni South 2, Johannesburg E, Mogale City, Johannesburg F, Johannesburg B, Tshwane 1, Emfuleni, Tshwane 3, Tshwane 6), one in the Eastern Cape (Sundays River Valley), one in Western Cape (Overstrand) and one in KwaZulu-Natal (Newcastle).

Table 6. Health sub-districts with a high proportion testing positive based on public sector data for the week of 7-13 June 2020

Health district or sub-district	Province	PTP (95% CI)	Previous week
Overstrand	Western Cape	0.496 (0.393-0.599)	0.251 (0.181-0.322)
CT Khayelitsha	Western Cape	0.493 (0.444-0.542)	0.453 (0.419-0.488)
Stellenbosch	Western Cape	0.468 (0.367-0.569)	0.427 (0.346-0.507)
Nelson Mandela Bay A	Eastern Cape	0.380 (0.301-0.458)	0.300 (0.210-0.389)
Drakenstein	Western Cape	0.375 (0.330-0.421)	0.370 (0.329-0.410)
CT Mitchells Plain	Western Cape	0.361 (0.321-0.401)	0.365 (0.339-0.391)
CT Northern	Western Cape	0.356 (0.279-0.433)	0.332 (0.283-0.381)
CT Eastern	Western Cape	0.355 (0.314-0.397)	0.353 (0.317-0.388)
CT Klipfontein	Western Cape	0.350 (0.289-0.410)	0.437 (0.386-0.488)
Saldanha Bay	Western Cape	0.347 (0.254-0.439)	0.278 (0.206-0.351)
CT Tygerberg	Western Cape	0.333 (0.303-0.362)	0.332 (0.309-0.356)
Theewaterskloof	Western Cape	0.321 (0.218-0.424)	0.237 (0.146-0.328)
Langeberg	Western Cape	0.309 (0.211-0.408)	0.255 (0.176-0.334)
Breede Valley	Western Cape	0.308 (0.256-0.360)	0.267 (0.227-0.307)
CT Western	Western Cape	0.306 (0.284-0.329)	0.308 (0.288-0.328)
Sundays River Valley	Eastern Cape	0.303 (0.207-0.399)	0.115 (0.040-0.190)
Lukanji	Eastern Cape	0.296 (0.226-0.365)	0.266 (0.214-0.317)

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Ekurhuleni North 1	Gauteng	0.285 (0.184-0.385)	0.051 (0.024-0.078)
CT Southern	Western Cape	0.268 (0.232-0.303)	0.238 (0.215-0.262)
Amahlathi	Eastern Cape	0.250 (0.133-0.367)	0.149 (0.100-0.199)
Emalahleni	Eastern Cape	0.234 (0.153-0.315)	0.209 (0.142-0.276)
King Sabata Dalindyebo	Eastern Cape	0.227 (0.184-0.270)	0.186 (0.153-0.219)
Nelson Mandela Bay B	Eastern Cape	0.224 (0.192-0.257)	0.191 (0.146-0.236)
Swartland	Western Cape	0.222 (0.148-0.297)	0.271 (0.211-0.331)
Nelson Mandela Bay C	Eastern Cape	0.216 (0.189-0.243)	0.194 (0.166-0.222)
Buffalo City	Eastern Cape	0.213 (0.180-0.246)	0.212 (0.184-0.240)
Sakhisizwe	Eastern Cape	0.207 (0.102-0.311)	0.111 (0.046-0.176)
Inxuba Yethemba	Eastern Cape	0.194 (0.130-0.258)	0.174 (0.123-0.224)
Johannesburg A	Gauteng	0.187 (0.115-0.260)	0.018 (0.002-0.033)
Ekurhuleni South 2	Gauteng	0.185 (0.093-0.276)	0.041 (0.016-0.066)
Camdeboo	Eastern Cape	0.180 (0.059-0.300)	0.037 (0.000-0.109)
Witzenberg	Western Cape	0.175 (0.084-0.266)	0.153 (0.106-0.200)
Mnquma	Eastern Cape	0.170 (0.122-0.217)	0.103 (0.065-0.141)
Nkonkobe	Eastern Cape	0.168 (0.107-0.228)	0.140 (0.096-0.185)
Nala	Free State	0.164 (0.071-0.257)	0.043 (0.002-0.084)
Nyandeni	Eastern Cape	0.162 (0.108-0.216)	0.089 (0.053-0.126)
Mhlontlo	Eastern Cape	0.159 (0.068-0.251)	0.197 (0.115-0.280)
Johannesburg E	Gauteng	0.156 (0.116-0.196)	0.071 (0.045-0.096)
Tlokwe City Council	NorthWest	0.153 (0.060-0.247)	...
Ekurhuleni South 1	Gauteng	0.152 (0.098-0.205)	0.084 (0.046-0.123)
Engcobo	Eastern Cape	0.146 (0.070-0.222)	0.124 (0.085-0.163)
Mogale City	Gauteng	0.137 (0.093-0.182)	0.044 (0.029-0.058)
George	Western Cape	0.132 (0.065-0.199)	0.086 (0.047-0.125)
Johannesburg F	Gauteng	0.117 (0.101-0.132)	0.062 (0.050-0.075)
Mbhashe	Eastern Cape	0.114 (0.040-0.189)	0.194 (0.124-0.265)
Johannesburg B	Gauteng	0.114 (0.087-0.141)	0.042 (0.033-0.052)
Nongoma	KwaZulu-Natal	0.112 (0.000-0.231)	...
Knysna	Western Cape	0.106 (0.057-0.156)	0.151 (0.078-0.223)

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Umzimvubu	Eastern Cape	0.106 (0.041-0.171)	0.110 (0.059-0.161)
Tshwane 1	Gauteng	0.104 (0.064-0.144)	0.031 (0.018-0.045)
Rustenburg	NorthWest	0.104 (0.057-0.151)	0.159 (0.085-0.233)
Madibeng	NorthWest	0.100 (0.007-0.194)	0.067 (0.000-0.157)
Nxuba	Eastern Cape	0.099 (0.016-0.182)	...
Emfuleni	Gauteng	0.097 (0.039-0.154)	0.015 (0.003-0.027)
Newcastle	KwaZulu-Natal	0.093 (0.056-0.131)	0.034 (0.019-0.049)
Oudtshoorn	Western Cape	0.090 (0.021-0.159)	0.015 (0.000-0.044)
Blue Crane Route	Eastern Cape	0.088 (0.026-0.151)	0.040 (0.002-0.079)
Johannesburg D	Gauteng	0.088 (0.066-0.111)	0.052 (0.035-0.070)
City of Matlosana	NorthWest	0.082 (0.053-0.112)	0.099 (0.064-0.135)
uMlalazi	KwaZulu-Natal	0.081 (0.027-0.136)	0.027 (0.007-0.047)
Tshwane 3	Gauteng	0.075 (0.059-0.092)	0.037 (0.026-0.048)
Ubuhlebezwe	KwaZulu-Natal	0.075 (0.000-0.175)	...
Tshwane 6	Gauteng	0.075 (0.032-0.117)	0.013 (0.000-0.025)
eThekwi North	KwaZulu-Natal	0.072 (0.044-0.100)	0.057 (0.042-0.072)
Maletsuwi	Eastern Cape	0.072 (0.000-0.150)	0.060 (0.000-0.127)
Mossel Bay	Western Cape	0.068 (0.027-0.109)	0.024 (0.000-0.050)
uMngeni	KwaZulu-Natal	0.067 (0.015-0.120)	0.032 (0.000-0.068)
Okhahlamba	KwaZulu-Natal	0.066 (0.000-0.137)	...
Endumeni	KwaZulu-Natal	0.063 (0.000-0.182)	0.053 (0.000-0.124)
Umdoni	KwaZulu-Natal	0.062 (0.000-0.130)	...
Mohokare	Free State	0.062 (0.003-0.120)	0.023 (0.000-0.069)
Maluti a Phofung	Free State	0.059 (0.034-0.084)	0.025 (0.008-0.042)
Ngquza Hill	Eastern Cape	0.058 (0.025-0.091)	0.090 (0.026-0.153)
uMshwathi	KwaZulu-Natal	0.058 (0.013-0.102)	...
Ramotshere Moiloa	NorthWest	0.057 (0.000-0.167)	0.050 (0.000-0.145)
uMuiziabantu	KwaZulu-Natal	0.057 (0.000-0.166)	...
eThekwi West	KwaZulu-Natal	0.056 (0.003-0.109)	0.076 (0.028-0.124)
Gariep	Eastern Cape	0.055 (0.000-0.160)	...

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Moses Kotane	NorthWest	0.055 (0.000-0.128)	0.023 (0.000-0.054)
KwaDukuza	KwaZulu-Natal	0.054 (0.022-0.087)	0.073 (0.050-0.097)
Matzikama	Western Cape	0.053 (0.000-0.112)	0.110 (0.027-0.193)
Dikgatlong	Northern Cape	0.052 (0.000-0.153)	...
Kouga	Eastern Cape	0.050 (0.000-0.118)	0.042 (0.000-0.088)

95% CI: 95% confidence interval; PTP: adjusted positive test proportion; CT: Cape Town; red font indicates current week proportions that are significantly higher than the previous week

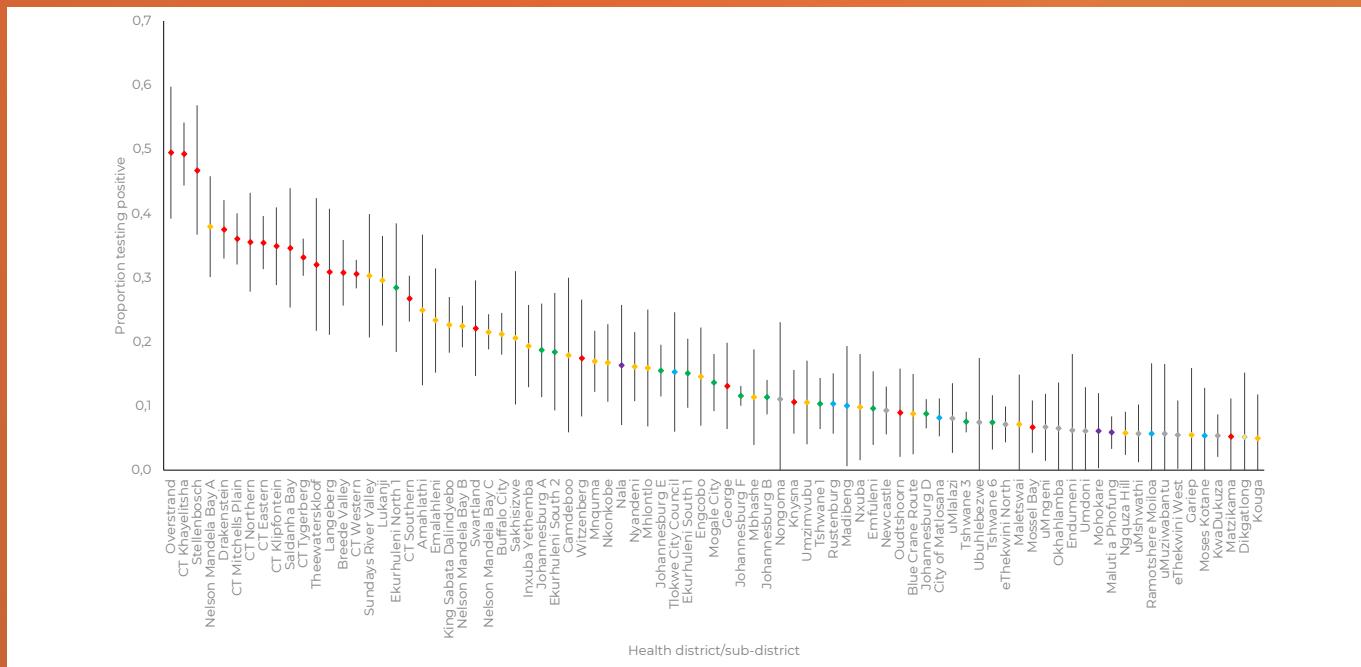


Figure 10. Health districts/sub-districts with a high proportion testing positive based on public sector data for the week of 7-13 June 2020. The colour of the marker distinguishes provinces (red: Western Cape; orange: Eastern Cape; green: Gauteng; grey: KwaZulu-Natal; blue: North West; purple: Free State; yellow: Northern Cape)

The spatial pattern of adjusted proportions testing positive in public facilities by health district and sub-district are shown for South Africa (Figure 11), and the three most affected provinces: Western Cape (Figure 12), Eastern Cape (Figure 13), and Gauteng (Figure 14).

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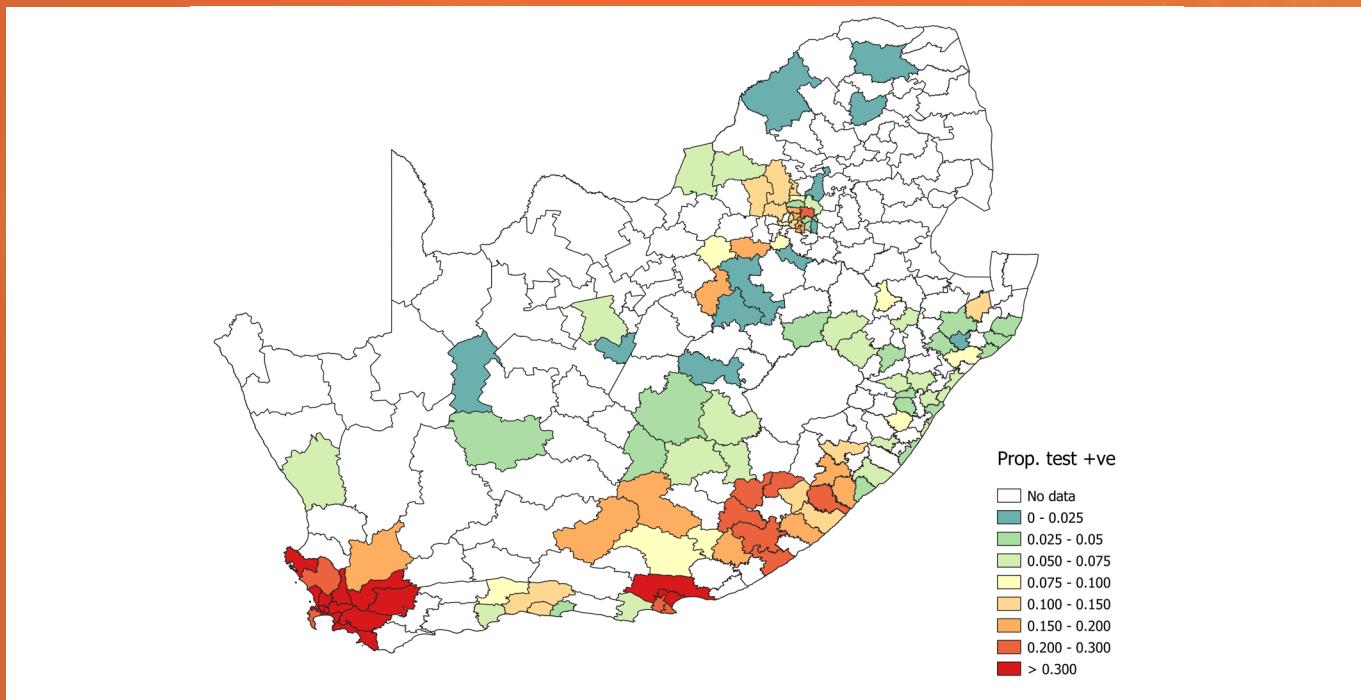


Figure 11. Proportion testing positive by health sub-district based on public sector data for the week of 7-13 June 2020, South Africa

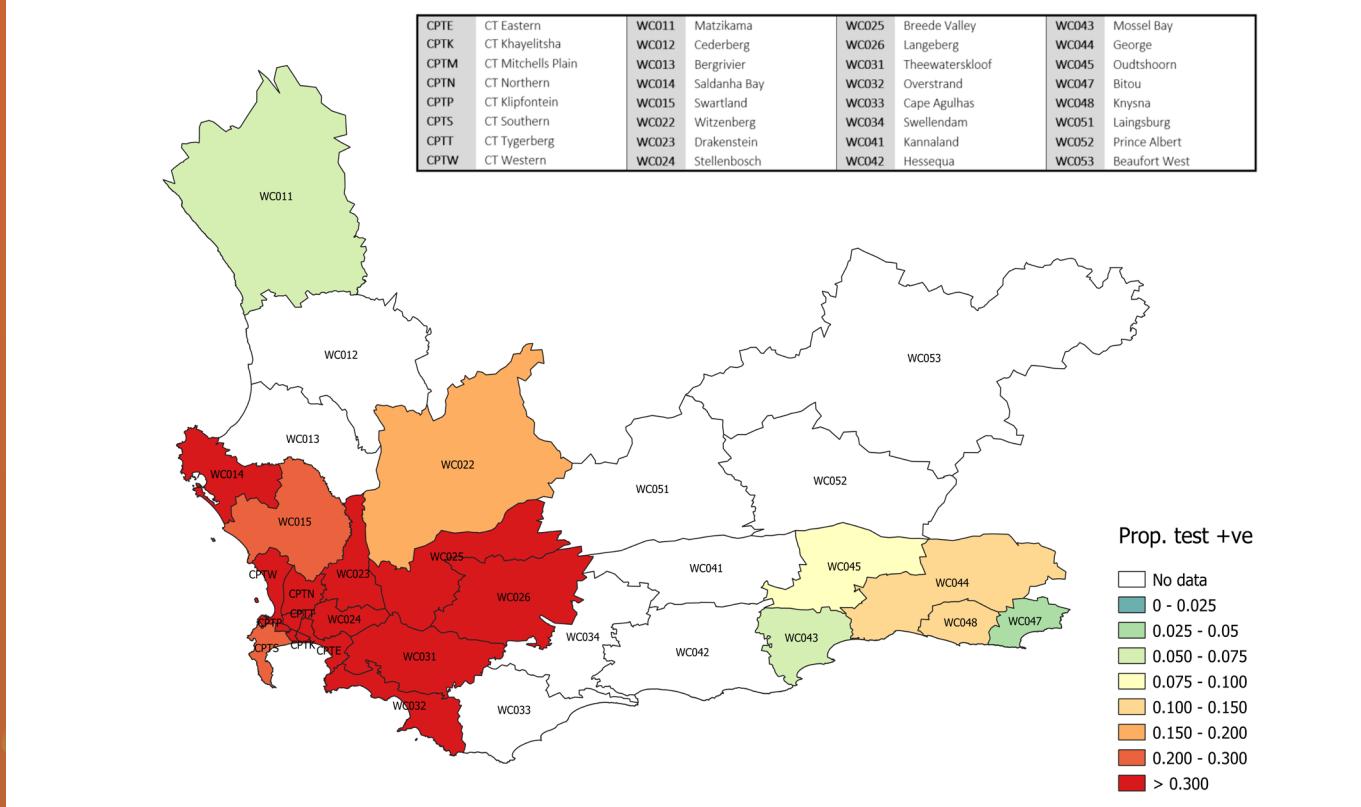


Figure 12. Health sub-districts in the Western Cape province with a high proportion testing positive based on public sector data for the week of 7-13 June 2020

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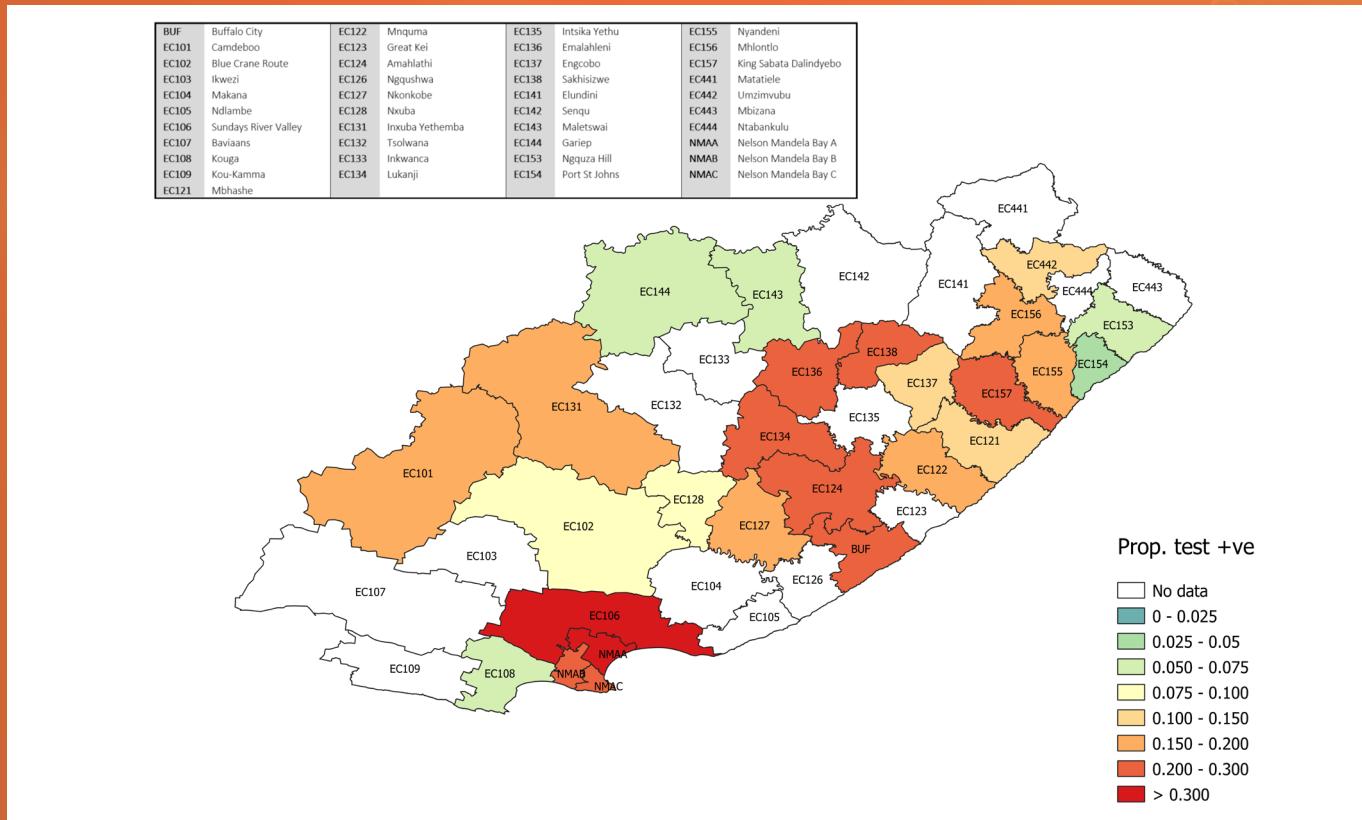


Figure 13. Health sub-districts in the Eastern Cape province with a high proportion testing positive based on public sector data for the week of 7-13 June 2020

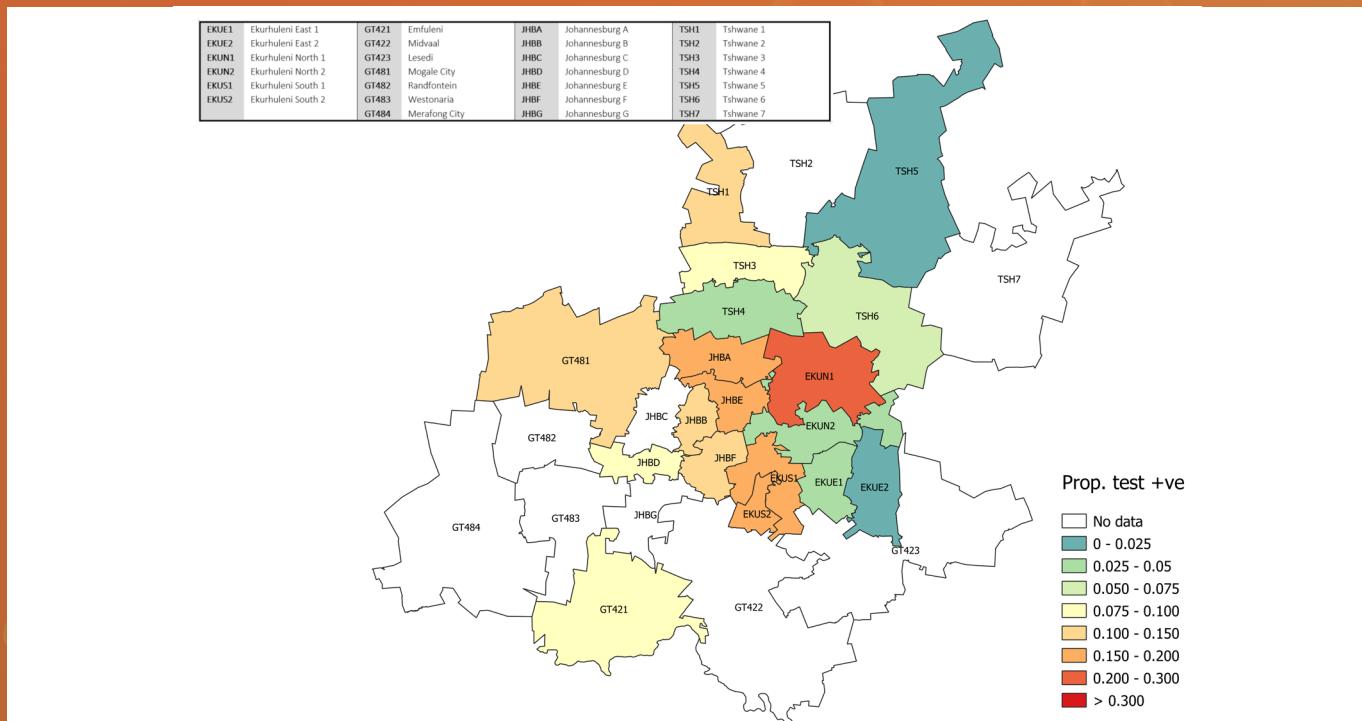


Figure 14. Health sub-districts in Gauteng Province with a high proportion testing positive based on public sector data for the week of 7-13 June 2020

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TESTING BY AGE AND SEX

The mean age of individuals tested decreased from 41.2 to 39.8 years in males and from 41.6 to 40.3 in females over the past 4 weeks. The mean age of females tested (40.3 years) was higher than for males (39.8 years) in the past week ($P<0.001$). The mean age of cases in week 24 did not differ between males (40.9 years) and females (41.1) ($P=0.572$) (Table 7). The sex ratio (the number of males per 100 females) of cases has increased over the past four weeks from 73.6 in week 21 to 82.9 in week 24. An increased proportion testing positive was observed for both males and females across all age groups in week 24 compared to the previous week (Figure 15).

Table 7. Mean age and sex ratio of individuals tested, South Africa, 17 May – 13 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
21	17 May	41.2	41.6	39.6	39.3	83.6	73.6
22	24 May	40.3	40.7	39.8	39.8	79.3	73.8
23	31 May	40.3	40.9	41.0	41.6	79.7	79.9
24	07 Jun	39.8	40.3	40.9	41.1	82.7	82.9

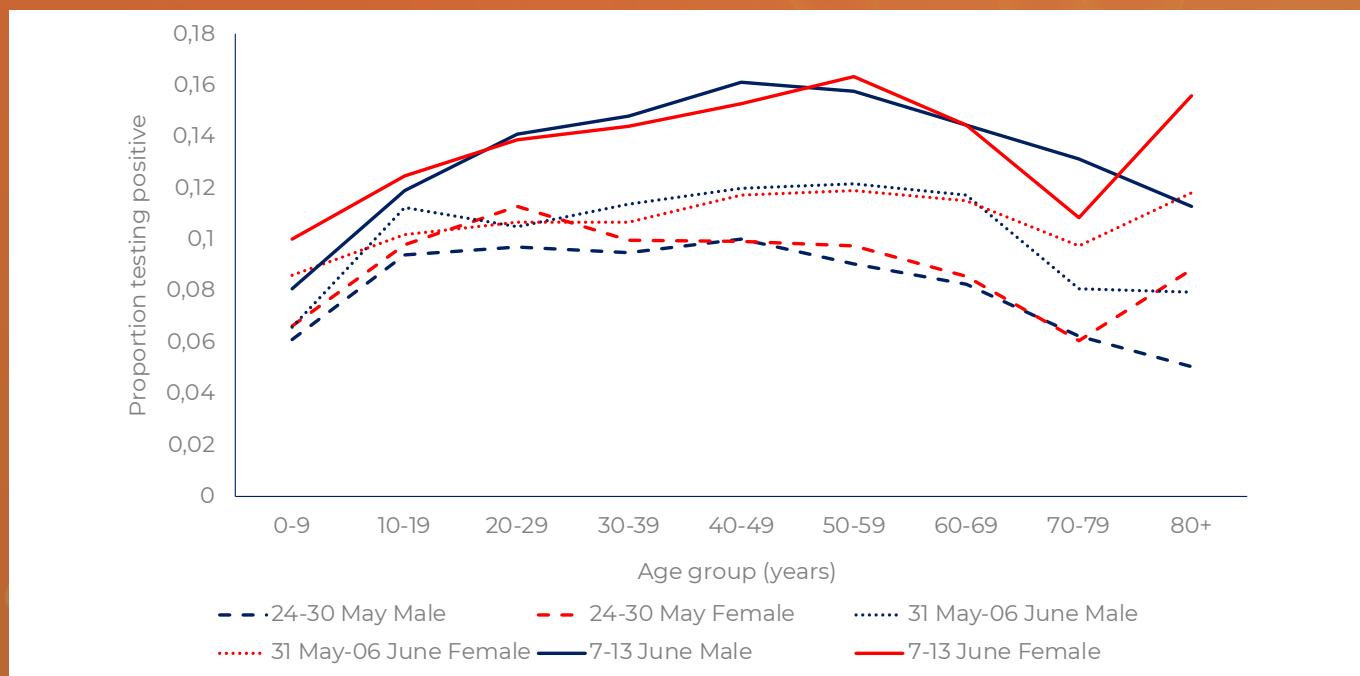


Figure 15. Weekly proportion testing positive by age group and sex, South Africa, 24 May-13 June 2020

COVID-19 TESTING SUMMARY

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From week 21 (17-23 May) to week 24 (7-13 June), the proportion testing positive increased significantly from 6.8% to 14.5% in males ($P<0.001$) and from 7.7% to 14.5% in females ($P<0.001$) (Table 8). In week 24 the proportion testing positive was higher in females than males in the <20-year age group ($P=0.015$), but did not differ in other age groups. The proportion testing positive was highest in the 40-59-year age groups for both males and females.

Table 8. Proportion testing positive by sex and week, South Africa, 17 May – 13 June 2020

Age (years)	17-23 May		24-30 May		31 May-06 June		07-13 June	
	Male	Female	Male	Female	Male	Female	Male	Female
0-19	6.7%	7.9%	7.6%	8.5%	8.8%	9.5%	10.1%	11.5%
20-39	7.4%	8.7%	9.6%	10.5%	11.1%	10.7%	14.6%	14.2%
40-59	6.7%	7.5%	9.6%	9.8%	12.1%	11.8%	16.0%	15.7%
60-69	5.2%	5.3%	8.2%	8.6%	11.7%	11.5%	14.4%	14.5%
70+	4.7%	4.6%	5.9%	7.1%	8.0%	10.5%	12.6%	12.6%
Total	6.8%	7.7%	9.1%	9.8%	11.1%	11.0%	14.5%	14.5%

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.

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CONCLUSIONS

There has been a decrease in the volume of tests conducted over the past three weeks, likely due to limited availability of extraction and testing kits and possibly also reflecting the revised testing strategy. The overall proportion testing positive continued to increase to 14.5% in week 24, with increases observed in both the public and private sectors. While the Western Cape (26.5%) and Eastern Cape (20.6%) provinces continued to have the highest proportion testing positive, the proportion testing positive increased in all of the 9 provinces over the past three weeks. A reduction in the proportion of public sector tests attributed to community testing was observed over the past three weeks, likely reflecting implementation of more targeted testing strategies. Increasing turnaround times as a result of testing backlogged specimens in the public sector laboratories impacts the analysis of testing data as results for a portion of samples collected in the past week are not yet reflected in this report.