SOUTH AFRICA WEEK 25 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 20 June 2020 (week 25 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 20 June 2020, 1 242 337 laboratory tests for SARS-CoV-2 have been conducted nationally
- Overall proportion testing positive was 7.9%. However, there continued to be an increase in the weekly proportion testing positive since week 18 to 18.5% in week 25 (14-20 June)
- Proportion testing positive in week 25 was 21% in the public sector and 17.6% in the private sector
- Western Cape (28.0%) and Eastern Cape (26.5%) provinces continued to have the highest proportion testing positive in the past week, however, Gauteng and North West provinces additionally had proportions testing positive of >15%
- The mean turnaround time in the public sector improved from 11 days to 9 days in the past week



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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 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 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. 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 20 June 2020 (week 25).



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### TESTING VOLUMES AND PROPORTION TESTING POSITIVE

From 1 March through 20 June 2020, 1 242 337 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 25, 123 179 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 – 20 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 25 was 7.9% (Table 1). The proportion testing positive continued to increase week on week, and has increased from 10.4% in week 23, to 14.0% in week 24 and to 18.5% in week 25 (P<0.001) (Figure 2).

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#### Table 1. Weekly number of tests conducted and positive tests, South Africa, 1 March – 20 June 2020

Week number	Week begin-	No of tests	No. of positive tests	Broportion testing
Week number	ning		No. of positive tests	positive (%)
10	01 Mar	384(0.0)	6	1.6
11	08 Mar	2 308 (0.2)	86	3.7
12	15 Mar	2 1284 (1.7)	825	3.9
13	22 Mar	17 019 (1.4)	461	2.7
14	29 Mar	17 388 (1.4)	393	2.3
15	05 Apr	24 632 (2.0)	568	2.3
16	12 Apr	41 644 (3.4)	1 045	2.5
17	19 Apr	74 597 (6.0)	1 917	2.6
18	26 Apr	87 731 (7.1)	2 912	3.3
19	03 May	132 785 (10.7)	5 558	4.2
20	10 May	148 461 (12.0)	7 316	4.9
21	17 May	150 476 (12.1)	10 422	6.9
22	24 May	133 863 (10.8)	11 483	8.6
23	31 May	126 021 (10.1)	1 3069	10.4
24	07 June	140 565 (11.3)	19 740	14.0
25	14 June	123 179 (9.9)	22 733	18.5
Tota	ıl	1 242 337 (100)	98 534	7.9

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Figure 2. Proportion of laboratory tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March – 20 June 2020. Blue dotted line shows the 7-day moving average of the proportion testing positive. Grey bars highlight weekend days

# TESTING IN PRIVATE AND PUBLIC SECTORS

From 1 March through 20 June, 654 167 laboratory tests were conducted in public sector laboratories, with 7.0% testing positive. Over this same period, private sector laboratories conducted 588 170 tests, with 9.0% testing positive (Table 2). Overall the public sector has conducted 52.7% of tests and accounted for 46.3% of cases. The proportion testing positive continued to increase in both the public and private sectors in week 25, and was significantly higher in the public sector (21.0%) compared to the private sector (17.6%) in week 25 (P<0.001).

Table 2. Weekly number of tests conducted and positive tests, by healthcare sector, South Africa, 1 March – 20 June 2020

		Publ	ic sector	Priva	te sector	Public propo	c sector rtion of	Ratio of PTPª
Week number	Week begining	Tests	Cases n (%)	Tests	Cases n (%)	Tests (%)	Cases (%)	
10	01 Mar	249	5 (2.0)	135	1 (0.7)	64.8	83.3	2.711
11	08 Mar	348	12 (3.4)	1960	74 (3.8)	15.1	14.0	0.913
12	15 Mar	1344	50 (3.7)	19 940	775 (3.9)	6.3	6.1	0.957

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25	14 June	31 811	6 669 (21.0)	91 368	16 064 (17.6)	25.8	29.3	1.192
23 24	31 May 07 June	53 697 49 887	5 708 (10.6) 6 571 (13.2)	72 324 90 678	7 36T (10.2) 13 169 (14.5)	42.6 35.5	43.7 33.3	1.044 0.907
22	24 May	69 434	5 751 (8.3)	64 429	5 732 (8.9)	51.9	50.1	0.931
21	17 May	92 931	6 517 (7.0)	57 545	3 905 (6.8)	61.8	62.5	1.033
20	10 May	99 480	5 084 (5.1)	48 981	2 232 (4.6)	67.0	69.5	1.122
19	03 May	90 752	4 270 (4.7)	42 033	1 288 (3.1)	68.3	76.8	1.535
18	26 Apr	65 733	2 304 (3.5)	21 998	608 (2.8)	74.9	79.1	1.268
17	19 Apr	54 308	1 481 (2.7)	20 289	436 (2.1)	72.8	77.3	1.269
16	12 Apr	23 833	609 (2.6)	17 811	436 (2.4)	57.2	58.3	1.044
15	05 Apr	11 379	320 (2.8)	13 253	248 (1.9)	46.2	56.3	1.503
14	29 Mar	5 626	158 (2.8)	11 762	235 (2.0)	32.4	40.2	1.406
13	22 Mar	3 355	121 (3.6)	13 664	340 (2.5)	19.7	26.2	1.449

<sup>a</sup> 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)

The mean turnaround time in the public sector increased from 2.1 days to 11.1 days from week 21 to week 24, due to testing of backlogged specimens (Figure 3). There has been an improvement in the turnaround time in week 25 to 9.1 days. 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 decreased in all five provinces (Figure 4). The number of tests conducted varied widely by public sector laboratory ranging from 3 to 24989 tests in week 25 (median of 2886 tests), depending on the testing platform being used. Of the 20 NHLS laboratories conducting SARS-CoV-2 testing, 17 had turnaround times >48 hours in the past week (Figure 5). Improvements in turnaround times were noted in 15 of the 20 NHLS laboratories in week.



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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, 17 May – 20 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, 17 May – 20 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, 31 May – 20 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 40.5% of tests nationally (Table 3). Four provinces including Western Cape, Eastern Cape, KwaZulu-Natal and Gauteng performed 83.6% of tests in week 25. Western Cape (28.0%) and Eastern Cape (26.5%) provinces continued to have the highest proportion testing positive in week 25 (Figure 6). In addition, Gauteng and North West provinces each had proportion testing positive of >15% 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).

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Table 3. Weekly number of tests performed and positive tests, by province, South Africa, 31 May – 20 June 2020

	31 M	lay-06 June	07-13	June	14-20	) June
Province	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	30 366	7 449 (24.5)	26 953	7 290 (27.0)	2 4031	6 740 (28.0)
Eastern Cape	14 382	2 191 (15.2)	20 990	4 049 (19.3)	15 824	4 197 (26.5)
Northern Cape	1 031	22 (2.1)	1 186	82 (6.9)	944	45 (4.8)
Free State	8 439	95 (1.1)	7 866	216 (2.7)	5 780	287 (5.0)
KwaZulu-Natal	18 039	570 (3.2)	18 031	794 (4.4)	13 162	1127 (8.6)
North West	3 044	218 (7.2)	3 961	449 (11.3)	4 712	718 (15.2)
Gauteng	42 887	2 232 (5.2)	50 751	6 162 (12.1)	49 926	8 857 (17.7)
Mpumalanga	3 596	158 (4.4)	4 729	278 (5.9)	4 724	392 (8.3)
Limpopo	2 884	33 (1.1)	3 138	118 (3.8)	2 296	134 (5.8)
Unknown	1 353	101 (7.5)	2 960	302 (10.2)	1 780	236 (13.3)
Total	126 021	13 069 (10.4)	140 565	19 740 (14.0)	123 179	22 733 (18.5)



Figure 6. Weekly proportion testing positive, by province, South Africa, 31 May – 20 June 2020. The horizontal blue line shows the national average for week 25, beginning 14 June 2020

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# **TESTING IN THE PUBLIC SECTOR**

In the public sector, the proportion testing positive increased to 21.0% in week 25 (Table 4). The proportion testing positive was highest in the Western Cape (35.4%), Eastern Cape (26.4%) and Gauteng (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, 31 May – 20 June 2020

	31 M	lay-06 June	07-13	June	14-20	) June
Province	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	11 291	3 557 (31.5)	8394	2 879 (34.3)	8 445	2 986 (35.4)
Eastern Cape	7 619	1170 (15.4)	10796	1 897 (17.6)	5 526	1 460 (26.4)
Northern Cape	3	0 (0.0)	2	0 (0.0)	9	0 (0.0)
Free State	6 520	54 (0.8)	5740	138 (2.4)	3 616	120 (3.3)
KwaZulu-Natal	9 309	304 (3.3)	8952	369 (4.1)	4 072	329 (8.1)
North West	623	52 (8.3)	666	58 (8.7)	1 142	127 (11.1)
Gauteng	16 415	562 (3.4)	13 250	1 181 (8.9)	8 011	1 616 (20.2)
Mpumalanga	245	0 (0.0)	482	21 (4.4)	238	7 (2.9)
Limpopo	1672	9 (0.5)	1605	28 (1.7)	752	24 (3.2)
Total	53 697	5708 (10.6)	49 887	6571 (13.2)	31 811	6 669 (21.0)

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Figure 7. Weekly proportion testing positive in the public sector, by province, South Africa, 31 May – 20 June 2020. The horizontal blue line shows the national average for week 25, beginning 14 June 2020

### PUBLIC FACILITIES WITH HIGH PROPORTIONS TESTING POSITIVE

Table 5 shows anonymised public healthcare facilities that tested ≥25 specimens and had the highest proportion testing positive (>20%) in the week of 14-20 June. Of 119 facilities, the majority are in the Western Cape (67/119, 56%), Eastern Cape (25/119, 21%) and Gauteng (22/119, 18%) provinces.

Table 5. Public healthcare facilities with a high proportion testing positive, 14-20 June 2020

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Western Cape	31	0.710 (0.550;0.869)
Facility 2	Western Cape	46	0.587 (0.445;0.729)
Facility 3	Western Cape	41	0.585 (0.435;0.736)
Facility 4	Western Cape	97	0.577 (0.479;0.676)
Facility 5	Eastern Cape	47	0.574 (0.433;0.716)

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Facility 6	Western Cape	225	0.573 (0.509;0.638)
Facility 7	Western Cape	56	0.554 (0.423;0.684)
Facility 8	Western Cape	59	0.542 (0.415;0.669)
Facility 9	Eastern Cape	69	0.536 (0.419;0.654)
Facility 10	Western Cape	29	0.517 (0.335;0.699)
Facility 11	Western Cape	35	0.514 (0.349;0.680)
Facility 12	Western Cape	334	0.509 (0.455;0.563)
Facility 13	Western Cape	54	0.500 (0.367;0.633)
Facility 14	Western Cape	80	0.500 (0.390;0.610)
Facility 15	Western Cape	108	0.491 (0.396;0.585)
Facility 16	Western Cape	70	0.486 (0.369;0.603)
Facility 17	Western Cape	33	0.485 (0.314;0.655)
Facility 18	Gauteng	76	0.474 (0.361;0.586)
Facility 19	Western Cape	28	0.464 (0.280;0.649)
Facility 20	Western Cape	119	0.462 (0.373;0.552)
Facility 21	Western Cape	52	0.462 (0.326;0.597)
Facility 22	Western Cape	65	0.462 (0.340;0.583)
Facility 23	Western Cape	33	0.455 (0.285;0.624)
Facility 24	Eastern Cape	214	0.453 (0.387;0.520)
Facility 25	Eastern Cape	31	0.452 (0.276;0.627)
Facility 26	North West	243	0.436 (0.374;0.499)
Facility 27	Gauteng	1169	0.436 (0.407;0.464)
Facility 28	Western Cape	306	0.435 (0.379;0.490)
Facility 29	Western Cape	44	0.432 (0.285;0.578)
Facility 30	Western Cape	161	0.429 (0.352;0.505)
Facility 31	Western Cape	40	0.425 (0.272;0.578)
Facility 32	Eastern Cape	53	0.415 (0.282;0.548)
Facility 33	Eastern Cape	41	0.415 (0.264;0.565)
Facility 34	Western Cape	56	0.411 (0.282;0.540)
Facility 35	Western Cape	32	0.406 (0.236;0.576)

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Facility 36	Eastern Cape	43	0.395 (0.249;0.541)
Facility 37	Western Cape	46	0.391 (0.250;0.532)
Facility 38	Western Cape	316	0.389 (0.335;0.443)
Facility 39	Eastern Cape	49	0.388 (0.251;0.524)
Facility 40	Western Cape	165	0.382 (0.308;0.456)
Facility 41	Western Cape	50	0.380 (0.245;0.515)
Facility 42	Western Cape	87	0.379 (0.277;0.481)
Facility 43	Western Cape	127	0.378 (0.294;0.462)
Facility 44	Eastern Cape	45	0.378 (0.236;0.519)
Facility 45	Western Cape	141	0.376 (0.296;0.456)
Facility 46	Western Cape	112	0.375 (0.285;0.465)
Facility 47	Western Cape	32	0.375 (0.207;0.543)
Facility 48	Eastern Cape	56	0.375 (0.248;0.502)
Facility 49	Western Cape	40	0.375 (0.225;0.525)
Facility 50	Eastern Cape	249	0.373 (0.313;0.434)
Facility 51	Western Cape	51	0.373 (0.240;0.505)
Facility 52	Western Cape	62	0.371 (0.251;0.491)
Facility 53	Eastern Cape	87	0.368 (0.266;0.469)
Facility 54	Western Cape	381	0.367 (0.319;0.416)
Facility 55	Gauteng	112	0.366 (0.277;0.455)
Facility 56	Gauteng	44	0.364 (0.221;0.506)
Facility 57	North West	25	0.360 (0.172;0.548)
Facility 58	Eastern Cape	28	0.357 (0.180;0.535)
Facility 59	Western Cape	59	0.356 (0.234;0.478)
Facility 60	Western Cape	163	0.356 (0.282;0.429)
Facility 61	Gauteng	110	0.355 (0.265;0.444)
Facility 62	Western Cape	679	0.349 (0.313;0.385)
Facility 63	Eastern Cape	43	0.349 (0.206;0.491)
Facility 64	Western Cape	43	0.349 (0.206;0.491)
Facility 65	Western Cape	43	0.349 (0.206;0.491)

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Facility 66	Eastern Cape	104	0.346 (0.255;0.438)
Facility 67	Gauteng	155	0.342 (0.267;0.417)
Facility 68	Gauteng	241	0.340 (0.280;0.400)
Facility 69	Western Cape	109	0.339 (0.251;0.428)
Facility 70	Eastern Cape	217	0.336 (0.274;0.399)
Facility 71	Western Cape	90	0.333 (0.236;0.431)
Facility 72	Eastern Cape	30	0.333 (0.165;0.502)
Facility 73	Eastern Cape	236	0.331 (0.270;0.391)
Facility 74	Eastern Cape	240	0.329 (0.270;0.389)
Facility 75	Western Cape	70	0.329 (0.219;0.439)
Facility 76	Western Cape	43	0.326 (0.186;0.466)
Facility 77	Western Cape	83	0.325 (0.225;0.426)
Facility 78	Gauteng	53	0.321 (0.195;0.446)
Facility 79	Western Cape	44	0.318 (0.181;0.456)
Facility 80	Western Cape	198	0.318 (0.253;0.383)
Facility 81	Eastern Cape	247	0.316 (0.258;0.374)
Facility 82	Western Cape	181	0.315 (0.247;0.383)
Facility 83	Western Cape	105	0.314 (0.225;0.403)
Facility 84	North West	32	0.313 (0.152;0.473)
Facility 85	Eastern Cape	45	0.311 (0.176;0.446)
Facility 86	Western Cape	168	0.310 (0.240;0.379)
Facility 87	Eastern Cape	55	0.309 (0.187;0.431)
Facility 88	Western Cape	59	0.305 (0.188;0.423)
Facility 89	Gauteng	150	0.300 (0.227;0.373)
Facility 90	Western Cape	264	0.299 (0.244;0.354)
Facility 91	Gauteng	87	0.299 (0.203;0.395)
Facility 92	Eastern Cape	145	0.297 (0.222;0.371)
Facility 93	Gauteng	218	0.289 (0.229;0.349)
Facility 94	North West	97	0.289 (0.198;0.379)
Facility 95	Eastern Cape	117	0.282 (0.201;0.364)

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Facility 96	Western Cape	68	0.279 (0.173;0.386)
Facility 97	Gauteng	158	0.272 (0.203;0.342)
Facility 98	Gauteng	257	0.268 (0.214;0.323)
Facility 99	Western Cape	90	0.267 (0.175;0.358)
Facility 100	Western Cape	98	0.265 (0.178;0.353)
Facility 101	Gauteng	204	0.265 (0.204;0.325)
Facility 102	Western Cape	99	0.263 (0.176;0.349)
Facility 103	Gauteng	42	0.262 (0.129;0.395)
Facility 104	Western Cape	42	0.262 (0.129;0.395)
Facility 105	Gauteng	58	0.259 (0.146;0.371)
Facility 106	KwaZulu-Natal	74	0.257 (0.157;0.356)
Facility 107	Gauteng	188	0.255 (0.193;0.318)
Facility 108	Western Cape	98	0.255 (0.169;0.341)
Facility 109	Western Cape	51	0.255 (0.135;0.375)
Facility 110	Eastern Cape	198	0.247 (0.187;0.308)
Facility 111	Gauteng	47	0.234 (0.113;0.355)
Facility 112	Western Cape	43	0.233 (0.106;0.359)
Facility 113	Gauteng	65	0.231 (0.128;0.333)
Facility 114	Western Cape	53	0.226 (0.114;0.339)
Facility 115	Gauteng	71	0.225 (0.128;0.323)
Facility 116	Gauteng	185	0.211 (0.152;0.270)
Facility 117	Western Cape	158	0.209 (0.145;0.272)
Facility 118	Western Cape	53	0.208 (0.098;0.317)
Facility 119	Gauteng	190	0.200 (0.143;0.257)

\*Colour coding is used to demarcate PTP bands (≥40%; 30%-39%; 20%-29%)

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

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### PUBLIC SECTOR TESTING: HEALTH DISTRICT-LEVEL RESULTS

Table 6 and Figure 8 show health sub-districts with high adjusted proportion testing positive (>10%) for the week of 14-20 June. Of the 83 sub-districts, 66 (80%) are in Western Cape, Eastern Cape and Gauteng provinces. The adjusted proportion testing positive exceeded 30% in 14 health sub-districts in the Western Cape, 8 in the Eastern Cape and 1 in North West. With the exception of George (in the Western Cape), all other districts showing significant increases are in Gauteng, Eastern Cape, North West and KwaZulu-Natal.

Table 6. Health sub-districts with a high proportion testing positive based on public sector data for the week of 14-20 June 2020

Health district or sub-district	Province	PTP (95% CI)	Previous week
CT Khayelitsha	Western Cape	0.534 (0.487-0.580)	0.506 (0.461-0.550)
Stellenbosch	Western Cape	0.505 (0.426-0.584)	0.513 (0.415-0.610)
CT Klipfontein	Western Cape	0.453 (0.396-0.510)	0.476 (0.425-0.526)
CT Mitchells Plain	Western Cape	0.417 (0.376-0.458)	0.395 (0.359-0.431)
Overstrand	Western Cape	0.409 (0.340-0.478)	0.432 (0.340-0.524)
CT Eastern	Western Cape	0.403 (0.363-0.443)	0.361 (0.320-0.402)
Drakenstein	Western Cape	0.388 (0.341-0.435)	0.377 (0.335-0.419)
Nelson Mandela Bay A	Eastern Cape	0.387 (0.325-0.449)	0.314 (0.260-0.368)
Tlokwe City Council	North West		0.152 (0.060-0.245)
CT Tygerberg	Western Cape	0.360 (0.334-0.386)	0.361 (0.335-0.388)
Buffalo City	Eastern Cape		0.194 (0.172-0.217)
Theewaterskloof	Western Cape	0.354 (0.279-0.430)	0.333 (0.243-0.423)
Nkonkobe	Eastern Cape		0.172 (0.129-0.215)
Beaufort West	Western Cape	0.344 (0.115-0.573)	
CT Northern	Western Cape	0.339 (0.268-0.409)	0.353 (0.284-0.421)
Breede Valley	Western Cape	0.337 (0.286-0.389)	0.327 (0.280-0.375)
Sundays River Valley	Eastern Cape	0.335 (0.256-0.415)	0.240 (0.180-0.301)

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Mbhashe	Eastern Cape		0.134 (0.105-0.163)
CT Western	Western Cape	0.311 (0.288-0.335)	0.317 (0.295-0.339)
Lukanji	Eastern Cape	0.310 (0.240-0.381)	0.231 (0.191-0.271)
Langeberg	Western Cape	0.308 (0.240-0.376)	0.308 (0.232-0.385)
Kouga	Eastern Cape		0.160 (0.092-0.228)
Makana	Eastern Cape	0.307 (0.216-0.398)	0.184 (0.069-0.300)
Umzimvubu	Eastern Cape	0.299 (0.226-0.372)	0.130 (0.076-0.185)
Mnquma	Eastern Cape	0.299 (0.193-0.404)	0.185 (0.148-0.222)
Witzenberg	Western Cape	0.292 (0.230-0.354)	0.210 (0.147-0.273)
Johannesburg E	Gauteng		0.157 (0.126-0.187)
Nelson Mandela Bay C	Eastern Cape		0.215 (0.192-0.238)
Johannesburg B	Gauteng		0.114 (0.092-0.135)
Merafong City	Gauteng		0.033 (0.014-0.051)
George	Western Cape		0.136 (0.090-0.182)
King Sabata Dalindyebo	Eastern Cape	0.267 (0.221-0.312)	0.242 (0.206-0.278)
Nelson Mandela Bay B	Eastern Cape	0.263 (0.229-0.298)	0.221 (0.194-0.248)
CT Southern	Western Cape	0.262 (0.232-0.291)	0.279 (0.245-0.313)
Nyandeni	Eastern Cape	0.255 (0.183-0.327)	0.173 (0.134-0.212)
Johannesburg F	Gauteng		0.111 (0.099-0.124)
Umtshezi	KwaZulu-Natal	0.251 (0.152-0.349)	0.170 (0.094-0.246)
Ekurhuleni North 2	Gauteng		0.067 (0.048-0.086)
Cederberg	Western Cape	0.243 (0.122-0.365)	0.282 (0.000-0.614)
Tshwane 2	Gauteng	0.239 (0.085-0.392)	0.050 (0.014-0.086)
Emalahleni	Eastern Cape	0.238 (0.158-0.319)	0.210 (0.152-0.269)
Swartland	Western Cape	0.237 (0.182-0.292)	0.256 (0.202-0.310)
Maletswai	Eastern Cape		0.054 (0.002-0.105)
Blue Crane Route	Eastern Cape	0.233 (0.153-0.312)	0.110 (0.055-0.164)
Ekurhuleni North 1	Gauteng	0.232 (0.166-0.298)	0.192 (0.144-0.240)
Johannesburg D	Gauteng		0.098 (0.083-0.112)
City of Matlosana	NorthWest		0.103 (0.075-0.131)

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Saldanha Bay	Western Cape	0.206 (0.149-0.262)	0.327 (0.247-0.406)
Ekurhuleni South 1	Gauteng		0.111 (0.078-0.143)
Johannesburg C	Gauteng		0.070 (0.037-0.103)
Umdoni	KwaZulu-Natal	0.192 (0.107-0.276)	0.072 (0.004-0.140)
Johannesburg G	Gauteng	0.191 (0.127-0.255)	0.090 (0.053-0.128)
Inxuba Yethemba	Eastern Cape	0.189 (0.120-0.258)	0.223 (0.168-0.278)
Ngquza Hill	Eastern Cape	0.184 (0.068-0.300)	0.088 (0.060-0.116)
Amahlathi	Eastern Cape		0.109 (0.091-0.126)
Mogale City	Gauteng	0.179 (0.145-0.213)	0.125 (0.094-0.155)
Tshwane 6	Gauteng	0.176 (0.119-0.234)	0.102 (0.064-0.141)
Emfuleni	Gauteng		0.053 (0.032-0.075)
Johannesburg A	Gauteng	0.173 (0.109-0.237)	0.141 (0.096-0.187)
Matzikama	Western Cape	0.172 (0.069-0.275)	0.060 (0.003-0.117)
Senqu	Eastern Cape	0.172 (0.056-0.287)	0.206 (0.125-0.286)
Tshwane 5	Gauteng	0.170 (0.000-0.346)	0.012 (0.000-0.029)
Ekurhuleni East 1	Gauteng		0.024 (0.005-0.042)
Ekurhuleni East 2	Gauteng		0.026 (0.008-0.044)
Ekurhuleni South 2	Gauteng	0.157 (0.111-0.203)	0.115 (0.067-0.163)
Knysna	Western Cape	0.150 (0.088-0.213)	0.105 (0.056-0.154)
Tshwane 7	Gauteng	0.147 (0.037-0.256)	0.082 (0.005-0.160)
Gariep	Eastern Cape	0.146 (0.069-0.224)	
Tshwane 3	Gauteng		0.079 (0.065-0.094)
Elias Motsoaledi	Limpopo	0.123 (0.010-0.237)	
Mhlontlo	Eastern Cape	0.123 (0.063-0.184)	0.152 (0.110-0.195)
The Msunduzi	KwaZulu-Natal		0.039 (0.026-0.051)
Greater Kokstad	KwaZulu-Natal	0.104 (0.025-0.183)	0.132 (0.033-0.231)
eThekwini South	KwaZulu-Natal		0.040 (0.033-0.047)

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

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Figure 8. Health districts/sub-districts with a high proportion testing positive based on public sector data for the week of 14-20 June 2020. The colour of the marker distinguishes provinces (red: Western Cape; orange: Eastern Cape; green: Gauteng; grey: KwaZulu-Natal; blue: North West; purple: Limpopo)

The spatial pattern of adjusted proportions testing positive in public facilities by health district and sub-district are shown for South Africa (Figure 9), and the three most affected provinces: Western Cape (Figure 10), Eastern Cape (Figure 11), and Gauteng (Figure 12).



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Figure 9. Proportion testing positive by health sub-district based on public sector data for the week of 14-20 June 2020, South Africa



Figure 10. Health sub-districts in the Western Cape province with a high proportion testing positive based on public sector data for the week of 14-20 June 2020



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Figure 11. Health sub-districts in the Eastern Cape province with a high proportion testing positive based on public sector data for the week of 14-20 June 2020



Figure 12. Health sub-districts in Gauteng Province with a high proportion testing positive based on public sector data for the week of 14-20 June 2020

WEEK 25 2020

# TESTING BY AGE AND SEX

The majority of tests (78%) in week 25 were performed in individuals aged 20-59 years, as for the previous two weeks (Figure 13). The mean age of individuals tested in week 25 was 39.7 years and has remained relatively stable over the past 4 weeks in males and females. The mean age of cases in week 25 was 41.2 years and was higher in males (41.5 years) than females (41.0) (P=0.046) (Table 7). The sex ratio (the number of males per 100 females) of cases increased over the past four weeks from 73.1 in week 22 to 78.3 in week 25. An increased proportion testing positive was observed for both males and females across all age groups in week 25 compared to the previous week (Figure 14).



Figure 13. Proportion of tests performed by age group, 31 May-20 June 2020

		Mean age of tested (years)		Mean age of cases (years)		Sex ratios (males / 100 females)	
Week number	Week be- ginning	Males	Females	Males	Females	Tested	Cases
22	24 May	40.3	40.8	39.6	39.6	80.8	73.1
23	31 May	40.4	41.0	40.8	41.5	79.7	79.0
24	07 June	39.5	40.0	40.5	40.6	81.4	79.8
25	14 June	39.6	39.8	41.5	41.0	82.1	78.3

#### Table 7. Mean age and sex ratio of individuals tested, South Africa, 24 May – 20 June 2020

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Figure 14. Weekly proportion testing positive by age group and sex, South Africa, 31 May-20 June 2020

From week 22 to week 25, the proportion testing positive increased significantly from 8.1% to 17.9% in males (P<0.001) and from 9.0% to 18.8% in females (P<0.001) (Table 8). In week 25 the proportion testing positive was higher in females than males in the <20-year (P=0.001), 20-39 year (P=0.005) age groups, but did not differ in other age groups.

Table 8.	Proportion testing	positive by sex an	d week. South A	Africa. 24 Mav -	20 June	2020

Age (years)	24-30 May		31 May-06 June		07-13 June		14-20 June	
	Male	Female	Male	Female	Male	Female	Male	Female
0-19	7.4%	8.3%	8.5%	9.1%	10.3%	11.8%	12.7%	14.8%
20-39	8.4%	9.7%	10.3%	10.2%	13.9%	14.1%	17.5%	18.4%
40-59	8.5%	8.8%	11.3%	11.0%	15.2%	15.0%	19.7%	20.2%
60-69	7.1%	7.7%	10.4%	10.9%	13.7%	14.3%	19.6%	19.6%
70+	5.5%	6.7%	7.4%	9.7%	12.5%	12.3%	17.8%	19.0%
Total	8.1%	9.0%	10.3%	10.4%	13.9%	14.1%	17.9%	18.8%

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# 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. The overall proportion testing positive continued to increase to 18.5% in week 25, with increases observed in both the public and private sectors. While the Western Cape (28.0%) and Eastern Cape (26.5%) provinces continued to have the highest proportion testing positive, Gauteng and North West provinces also had proportions testing positive of >15% and the proportion testing positive increased in all nine provinces. The proportion testing positive increased in both males and females across all age groups. Increased proportions 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 in week 25, possibly indicating a reduction in testing backlogs.

