

COVID-19 TESTING SUMMARY



NATIONAL INSTITUTE FOR
COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

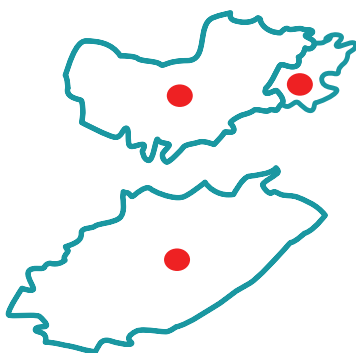
SOUTH AFRICA WEEK 29 2020

OVERVIEW

This report summarises national laboratory testing for SARS-CoV-2, the virus causing COVID-19, in South Africa. This report is based on data for specimens collected up to 18 July 2020 (week 29 of 2020).

Highlights

- In the period 1 March 2020 through 18 July 2020, 2 249 798 laboratory tests for SARS-CoV-2 have been conducted nationally.
- Five provinces including Western Cape, Eastern Cape, KwaZulu-Natal, Free State and Gauteng performed 85% of tests in week 29.
- Gauteng (461 per 100,000 persons) and Free State (451 per 100 000 persons) had the highest testing rates in the past week.
- Overall percentage testing positive was 16%, however, there continued to be an increase in the weekly percentage testing positive since week 18 to 33% in week 29 (12-18 July).
- North West (37.2%), Eastern Cape (36.6%) and Gauteng (35.2%) provinces had the highest proportion testing positive in week 29, while a decreased percentage testing positive was observed in the Western Cape.
- The mean turnaround time in week 29 was 7.2 days in the public sector and 2.0 days in the private sector.



TESTS

2 249 798

LABORATORY TESTS HAVE
BEEN CONDUCTED NATIONALLY
FROM 1 MARCH TO 18 JULY
2020



PERSONS

16%

OVERALL PROPORTION
TESTING POSITIVE

PROVINCES WITH HIGHEST PERCENTAGE TESTING POSITIVE

North West (37.2%), Eastern
Cape (36.6%) and Gauteng
(35.2%) provinces had the
highest percentage testing
positive 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 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. We used 2019 mid-year population estimates from Statistics South Africa to calculate the testing rate, expressed as tests per 100 000 persons. Patient admission status was determined for public sector tests based on the reported patient facility. Laboratory turnaround times were calculated as the mean number of days between specimen collection and reporting of the result. Categorical variables were compared using the chi-squared test, and continuous variables with the students t-test, with a P-value<0.05 considered statistically significant.

Health district and sub-district level results included only public sector data, and were mapped based on the testing facility. Estimates of overall prevalence were derived using regression techniques. Estimates were adjusted to produce district-specific positive test prevalences based on the average age profile, the average sex composition, and the average balance between clinical and CST tests across the entire public testing data for the week. This adjustment allows more accurate comparison of the proportion testing positive across districts.

The report includes tests conducted between 1 March 2020 (week 10), the week when the first case of COVID-19 was confirmed, and 18 July 2020 (week 29).

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TESTING VOLUMES AND PROPORTION TESTING POSITIVE

From 1 March through 18 July 2020, 2 249 798 laboratory tests for SARS-CoV-2 were performed. The number of tests performed increased to week 21, however decreased in weeks 22 and 23 due to a limited supply of extraction and testing kits. Increased volumes of tests have been observed week on week from week 24 to week 27, with the highest number of tests performed in week 27 (n=264 520) and week 28 (n=251 476). In week 29, 182 608 tests were performed. 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).

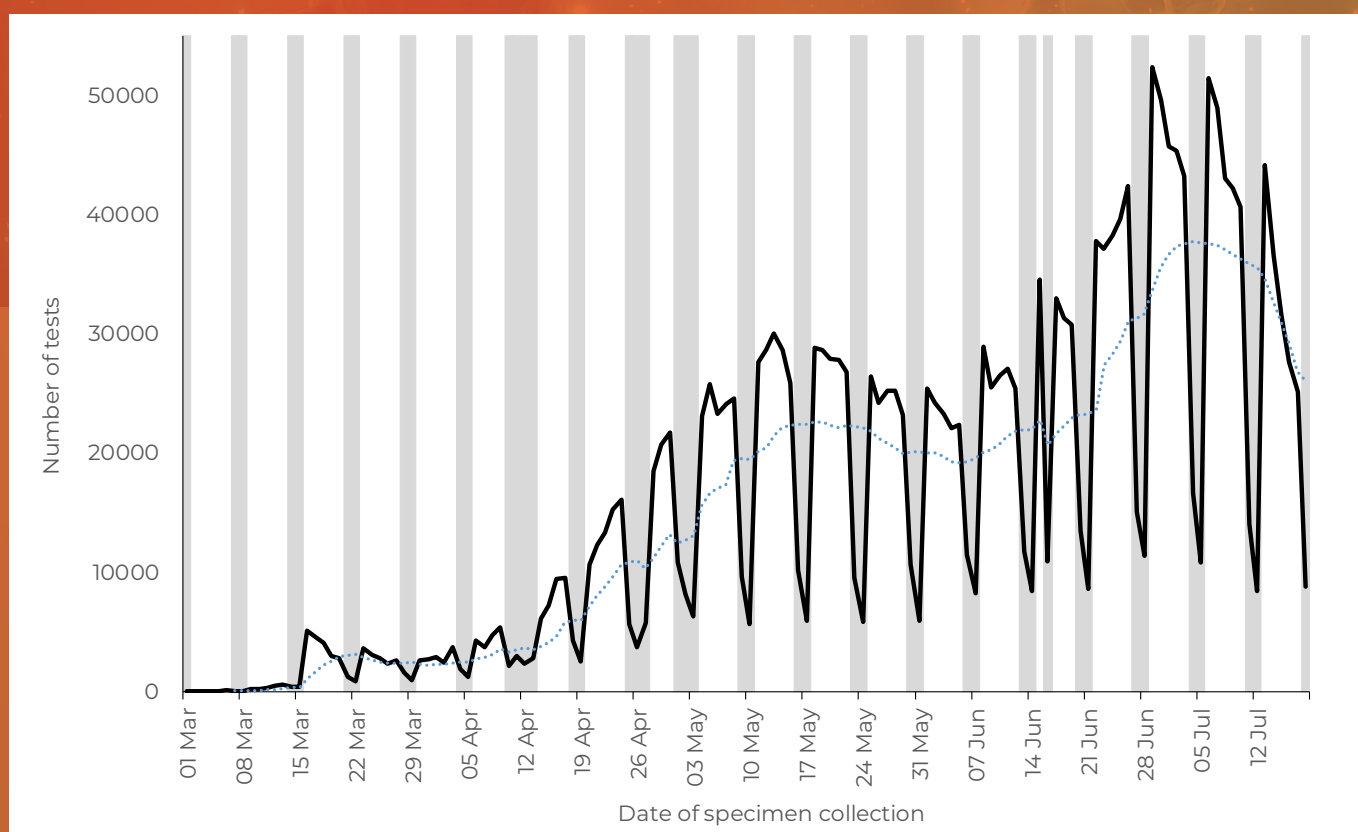


Figure 1. Number of laboratory tests conducted by date of specimen collection, South Africa, 1 March –18 July 2020. Blue dotted line shows the 7-day moving average of the number of tests conducted. Grey bars highlight weekend days and public holiday.

The overall percentage testing positive from week 10 through 29 was 16.1% (Table 1). The percentage testing positive continued to increase week on week, and has increased from 26.0% in week 27, to 29.9% in week 28 and to 32.6% in week 29 ($P < 0.001$) (Figure 2).

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Table 1. Weekly number of tests conducted and positive tests, South Africa, 1 March –18 July 2020

Week number	Week beginning	No. of tests n(%)	No. of positive tests	Percentage testing positive (%)
10	01-Mar	404 (0.0)	9	2.2
11	08-Mar	2 313 (0.1)	87	3.8
12	15-Mar	21 287 (0.9)	824	3.9
13	22-Mar	17 024 (0.8)	462	2.7
14	29-Mar	17 380 (0.8)	393	2.3
15	05-Apr	24 636 (1.1)	569	2.3
16	12-Apr	41 905 (1.9)	1 043	2.5
17	19-Apr	75 962 (3.4)	1 939	2.6
18	26-Apr	89 531 (4.0)	2 907	3.2
19	03-May	136 976 (6.1)	5 561	4.1
20	10-May	156 967 (7.0)	7 394	4.7
21	17-May	155 504 (6.9)	10 553	6.8
22	24-May	141 030 (6.3)	11 711	8.3
23	31-May	134 953 (6.0)	13 541	10.0
24	07-Jun	153 637 (6.8)	20 477	13.3
25	14-Jun	162 648 (7.2)	29 861	18.4
26	21-Jun	219 037 (9.7)	50 311	23.0
27	28-Jun	264 520 (11.8)	68 796	26.0
28	05-Jul	251 476 (11.2)	75 231	29.9
29	12-Jul	182 608 (8.1)	59 525	32.6
Total		2 249 798 (100.0)	361 194	16.1

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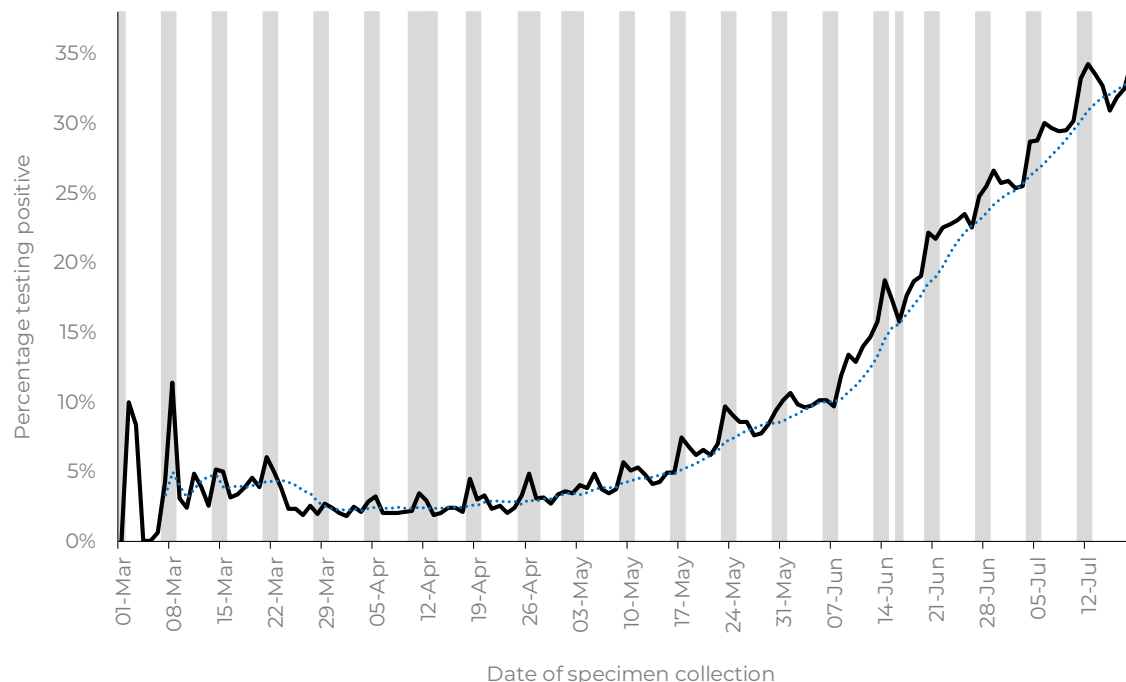


Figure 2. Percentage of laboratory tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March – 18 July 2020. Blue dotted line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

TESTING IN PRIVATE AND PUBLIC SECTORS

From 1 March through 18 July, 1 018 220 laboratory tests were conducted in public sector laboratories, with 13.1% testing positive. Over this same period, private sector laboratories conducted 1 231 578 tests, with 18.5% testing positive (Table 2). Overall the public sector has conducted 45.3% of tests and accounted for 36.9% of cases. The percentage testing positive continued to increase in both the public and private sectors, and was higher in the private sector (33.5%) compared to the public sector (29.6%) in week 29 ($P < 0.001$).

The mean turnaround time remained relatively consistent since week 27, and in week 29 was 4.0 days overall; 7.2 days in the public sector and 2.0 days in the private sector (Figure 3). Among tests conducted in the public sector in the five provinces conducting the largest volumes of tests, the turnaround time in week 29 was highest in KwaZulu-Natal (13.4 days) and lowest in the Western Cape (4.7 days) and Free State (4.8 days) provinces. Increases in turnaround time were observed in KwaZulu-Natal, Free State and Western Cape in the past week (Figure 4). Eight of the 20 NHLS laboratories performing testing for SARS-CoV-2 had improved turnaround times in week 29 compared to the previous week, although the large majority of public sector laboratories continued to have turnaround times >48 hours (Figure 5).

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Table 2. Weekly number of tests conducted and positive tests, by healthcare sector, South Africa, 1 March – 18 July 2020

Week number	Week beginning	Public sector		Private sector		Public sector proportion of		Ratio of PTP ^a
		Tests	Cases	Tests	Cases	Tests (%)	Cases (%)	
			n (%)		n (%)			
10	01-Mar	250	5 (2.0)	154	4 (2.6)	61.9	55.6	0.770
11	08-Mar	346	12 (3.5)	1 967	75 (3.8)	15.0	13.8	0.910
12	15-Mar	1 345	50 (3.7)	19 935	774 (3.9)	6.3	6.1	0.957
13	22-Mar	3 355	121 (3.6)	13 669	341 (2.5)	19.7	26.2	1.446
14	29-Mar	5 616	158 (2.8)	11 764	235 (2.0)	32.3	40.2	1.408
15	05-Apr	11 359	321 (2.8)	13 277	248 (1.9)	46.1	56.5	1.513
16	12-Apr	23 807	608 (2.6)	18 098	435 (2.4)	56.8	58.3	1.067
17	19-Apr	54 235	1 481 (2.7)	21 727	458 (2.1)	71.4	79.1	1.323
18	26-Apr	66 287	2 298 (3.5)	23 244	609 (2.6)	74.0	79.1	1.322
19	03-May	92 412	4 267 (4.6)	44 564	1 294 (2.9)	67.5	76.7	1.590
20	10-May	104 966	5 123 (4.9)	52 001	2 271 (4.4)	67.5	76.7	1.590
21	17-May	95 339	6 647 (7.0)	59 965	3 906 (6.5)	61.4	69.3	1.118
22	24-May	74 351	5 983 (8.0)	66 679	5 728 (8.6)	52.7	51.1	0.937
23	31-May	60 344	6 140 (10.2)	74 609	7 401 (9.9)	44.7	45.3	1.026
24	07-Jun	60 101	7 394 (12.3)	93 536	13 083 (14.0)	39.1	36.3	0.880
25	14-Jun	56 098	11 149 (22.9)	106 550	18 712 (17.6)	34.5	37.3	1.132
26	21-Jun	82 410	18 877 (22.9)	136 627	31 434 (23.0)	37.6	37.5	0.996
27	28-Jun	93 421	24 308 (26.0)	171 099	44 488 (26.0)	35.3	35.3	1.001
28	05-Jul	88 832	(28.7)	162 644	49 759 (30.6)	35.3	33.9	0.937
29	12-Jul	43 145	12 791 (29.6)	139 463	46 734 (33.5)	23.6	21.5	0.885
Total		1 018 220	133 205 (13.1)	1 231 578	227 989 (18.3)	45.3	37.5	0.707

^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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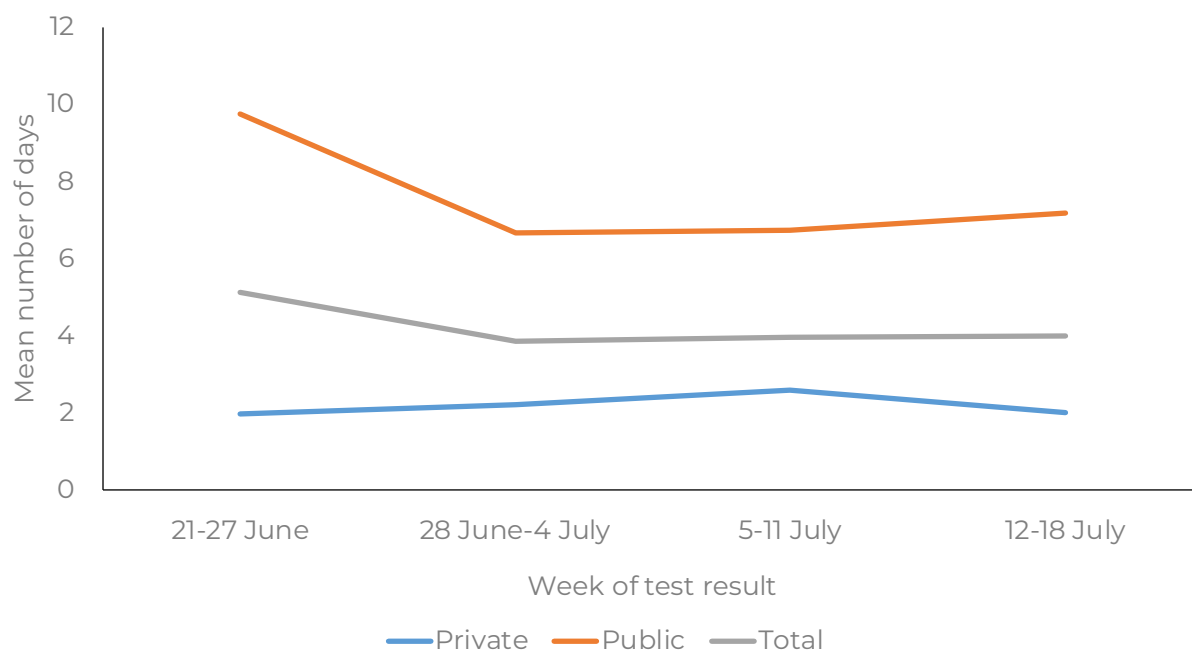


Figure 3. Mean number of days between date of specimen collection and date of test result, by week of test result, South Africa, 21 June – 18 July 2020

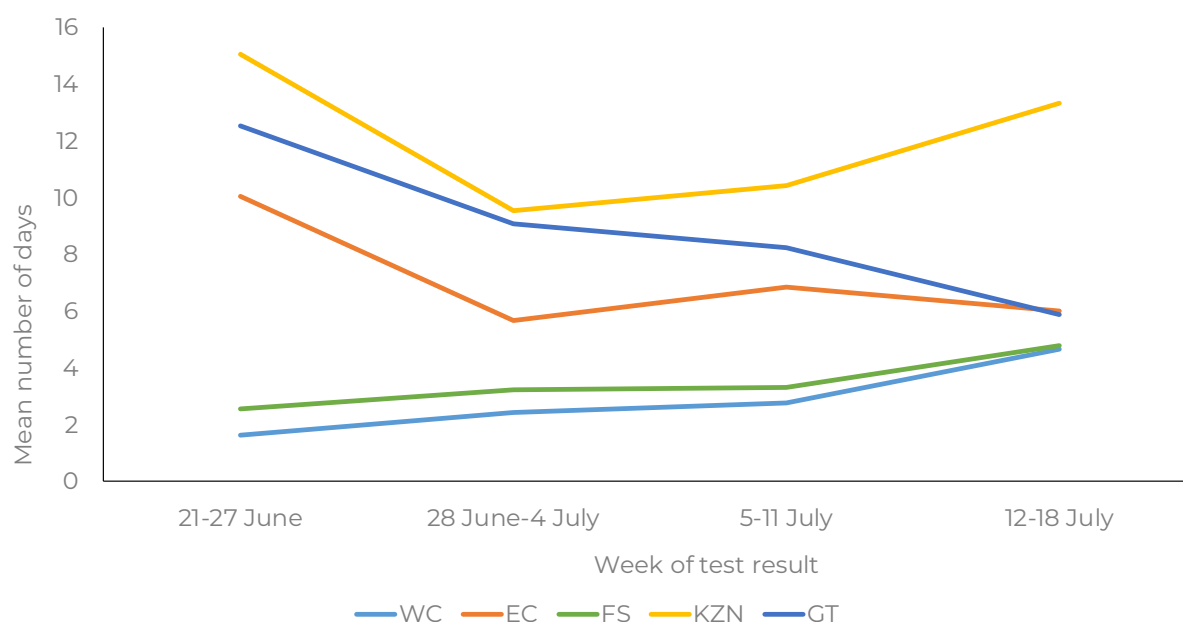


Figure 4. Mean number of days between date of specimen collection and date of test result, by week of test result and province, South Africa, 21 June – 18 July 2020. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal, GT, Gauteng

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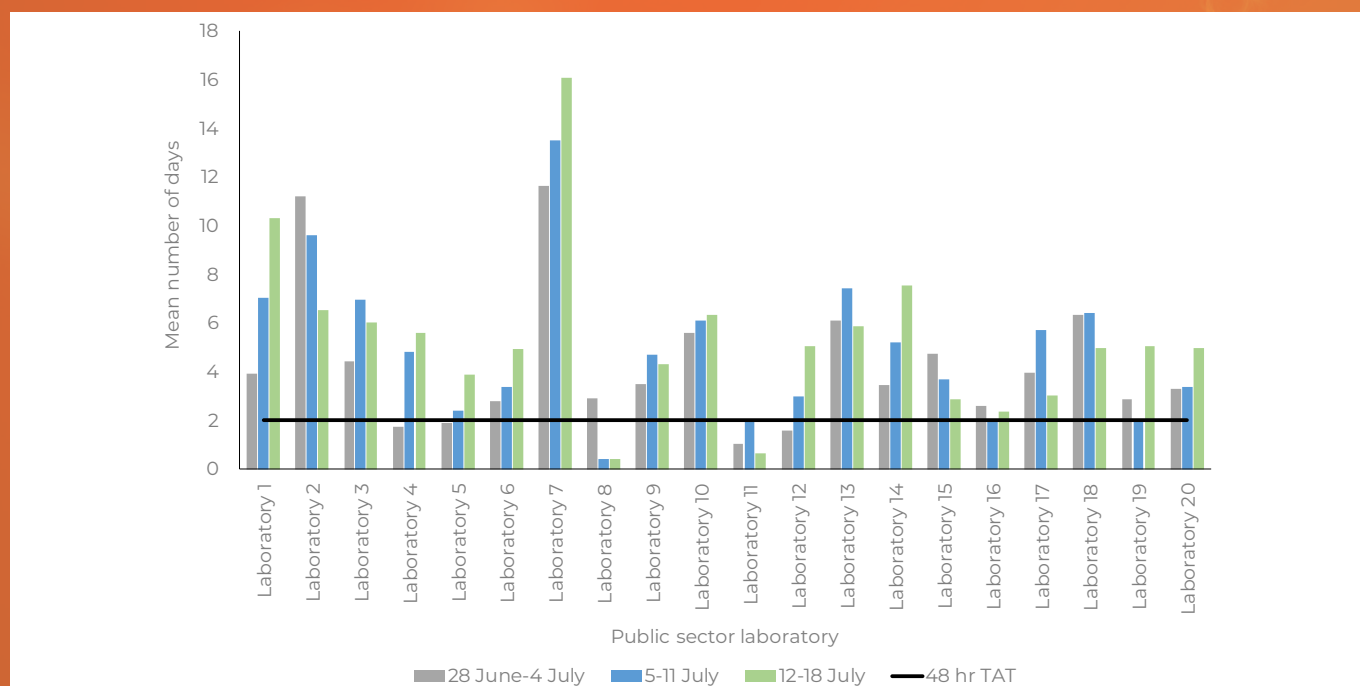


Figure 5. Mean number of days between date of specimen collection and date of test result, by public sector laboratory, 28 June – 18 July 2020. The horizontal black line indicates 48-hour turnaround time (TAT).

TESTING BY PROVINCE

In the past week Gauteng province performed the largest numbers of tests, accounting for 38% of tests nationally (Table 3). Five provinces including Western Cape, Eastern Cape, KwaZulu-Natal, Free State and Gauteng performed 85% of tests in week 29. Gauteng and Free State had the highest testing rates per 100 000 persons in the past week. Since week 27 decreases in testing rates were observed in KwaZulu-Natal, Western Cape, Eastern Cape and Gauteng provinces (Figure 6).

North West (37.2%), Eastern Cape (36.6%) and Gauteng (35.2%) provinces had the highest proportion testing positive in week 29 (Figure 7). Based on the last three weeks, the percentage testing positive continued to increase significantly in 8 provinces (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 ($P<0.001$)), whereas the percentage testing positive decreased over this period in the Western Cape ($P<0.001$). The percentage testing positive was higher than the national average, not weighted for population size, in the Eastern Cape, North West, Gauteng and Mpumalanga provinces (Figure 7).

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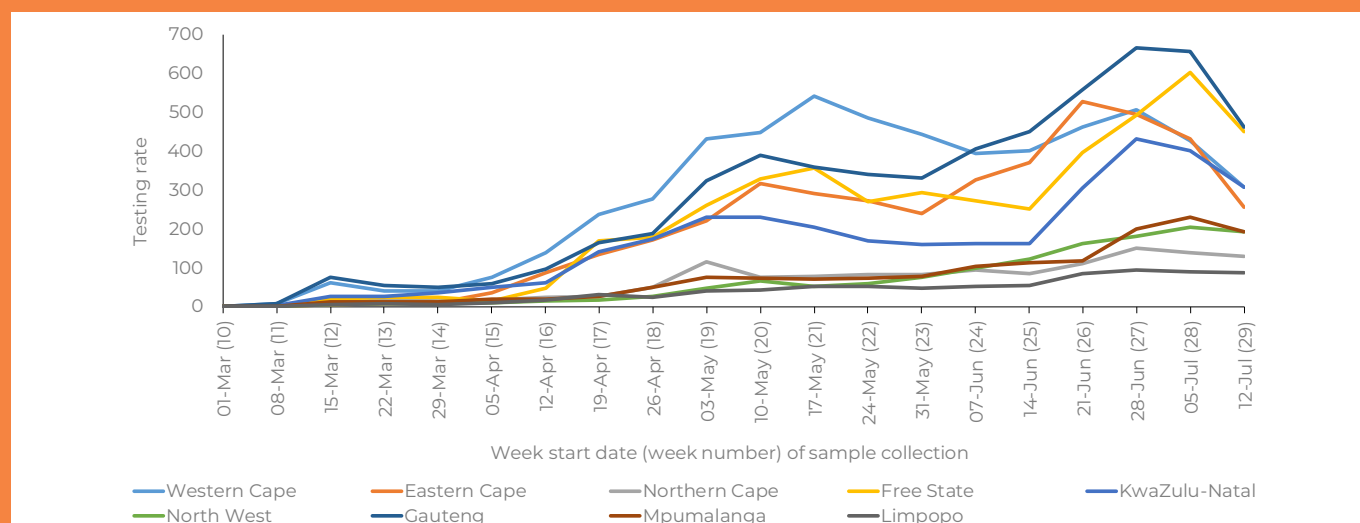


Table 3. Weekly number of tests performed and positive tests, by province, South Africa, 28 June – 18 July 2020

Province	Population ^a	28 June - 4 July		5-11 July		12-18 July		Tests per 100 000 persons
		No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	
Western Cape	6 844 272	34 645	10034 (29.0)	29 253	7 747 (26.5)	21 064	5 335 (25.3)	308
Eastern Cape	6 712 276	33 257	11 704 (35.2)	28 937	10710 (37.0)	1 7249	6 313 (36.6)	257
Northern Cape	1 263 875	1 911	226 (11.8)	1 765	277 (15.7)	1 639	422 (25.7)	130
Free State	2 887 465	14232	1 875 (13.2)	17421	3 631 (20.8)	13 025	4 225 (32.4)	451
KwaZulu-Natal	11 289 086	48 743	10 002 (20.5)	45 330	12 440 (27.4)	3 4752	1 1169 (32.1)	308
North West	4 027 160	7 294	2 010 (27.6)	8 231	2 948 (35.8)	77 16	2 873 (37.2)	192
Gauteng	15 176 115	101 058	29 382 (29.1)	9 9531	32 908 (33.1)	6 9959	24 656 (35.2)	461
Mpumalanga	4 592 187	9 173	1 582 (17.2)	10 556	2 729 (25.9)	8 863	2 963 (33.4)	193
Limpopo	5 982 584	5 668	885 (15.6)	5 409	955 (17.7)	5 168	1 065 (20.6)	86
Unknown		8 539	1 096 (12.8)	5 043	886 (17.6)	3 173	504 (15.9)	
Total	58 750 220	264520	68796 (26.0)	251476	75231 (29.9)	182608	59525 (32.6)	311

^a2019 Mid-year population Statistics SA

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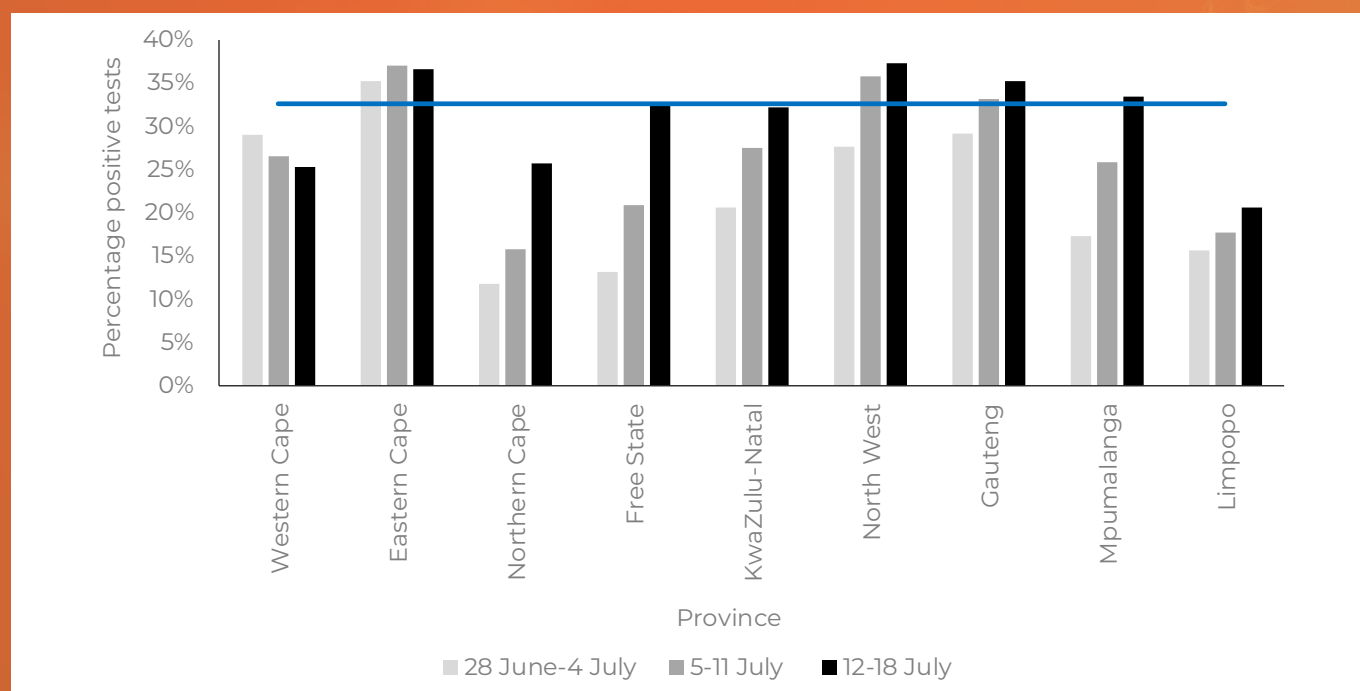


Figure 7. Weekly percentage testing positive, by province, South Africa, 28 June – 18 July 2020. The horizontal blue line shows the national mean for week 29, beginning 12 July 2020.

TESTING IN THE PUBLIC SECTOR

In the public sector, the percentage testing positive increased to 29.6% in week 29 (Table 4). The percentage testing positive was >30% in the Eastern Cape (32.4%), North West (35.4%) and Gauteng (32.7%) provinces. The percentage testing positive in the public sector remains higher than the national average, not weighted for population size, in the Eastern Cape, North West and Gauteng provinces (Figure 8).

Table 4. Weekly number of tests conducted and positive tests in the public sector, by province, South Africa, 28 June – 18 July 2020

Province	28 June -4 July		5-11 July		12-18 July	
	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	15 786	5 099 (32.3)	14 761	4 281 (29.0)	8 547	2 295 (26.9)
Eastern Cape	15 189	5 174 (34.1)	16 127	5 510 (34.2)	8 120	2 629 (32.4)
Northern Cape	9	0 (0.0)	4	0 (0.0)	0	0 (0.0)

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Free State	9 310	994 (10.7)	11 685	1 972 (16.9)	6192	1557 (25.1)
KwaZulu-Natal	21 197	3 968 (18.7)	13 595	3 518 (25.9)	4217	1218 (28.9)
North West	1 519	417 (27.5)	1 688	609 (36.1)	1 652	584 (35.4)
Gauteng	25 113	7 835 (31.2)	26 050	8 548 (32.8)	12 775	4 179 (32.7)
Mpumalanga	2 286	329 (14.4)	2 825	641 (22.7)	364	82 (22.5)
Limpopo	3 012	492 (16.3)	2 097	393 (18.7)	1 278	247 (19.3)
Unknown	0	0 (0.0)	0	0 (0.0)	0	0 (0.0)
Total	93 421	24 308 (26.0)	88 832	25 472 (28.7)	43 145	12 791 (29.6)

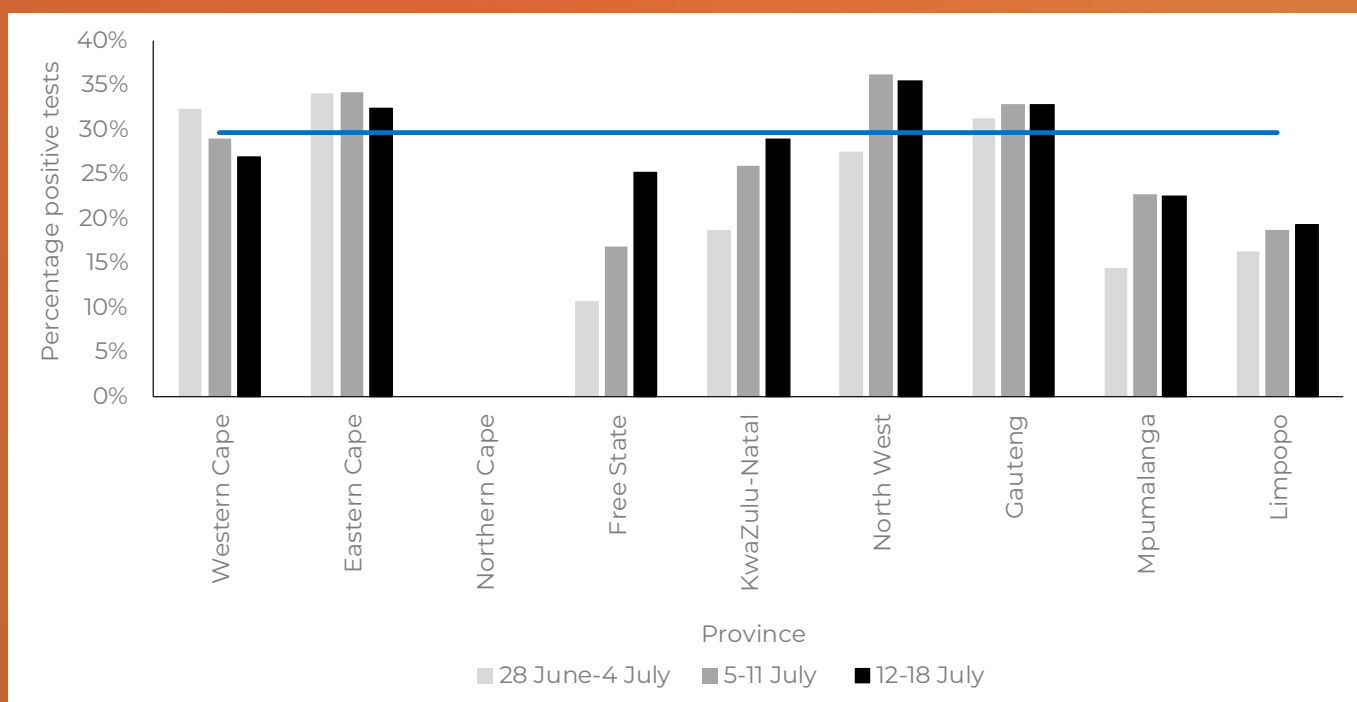


Figure 8. Weekly percentage testing positive in the public sector, by province, South Africa, 28 June – 18 July 2020. The horizontal blue line shows the national mean for week 29, beginning 12 July 2020.

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PUBLIC FACILITIES WITH HIGH PROPORTIONS TESTING POSITIVE

Table 5 shows the 25 public healthcare facilities with the highest proportion testing positive nationally in the week of 12-18 July. All 25 facilities continue to show a proportion testing positive greater than 50%. However, whereas in past weeks, the list was either dominated by, or included, facilities in the Western Cape, no facility in the Western Cape is on the list. Thirteen facilities are in the Eastern Cape, 8 in Gauteng, 3 in North West, and one in KwaZulu-Natal.

Table 5. Public healthcare facilities with a high proportion testing positive, 12-18 July 2020

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Eastern Cape	28	0.750 (0.590;0.910)
Facility 2	Eastern Cape	141	0.738 (0.665;0.810)
Facility 3	Eastern Cape	49	0.735 (0.611;0.858)
Facility 4	Eastern Cape	46	0.674 (0.538;0.809)
Facility 5	Eastern Cape	49	0.673 (0.542;0.805)
Facility 6	Eastern Cape	27	0.630 (0.447;0.812)
Facility 7	Eastern Cape	36	0.611 (0.452;0.770)
Facility 8	Gauteng	95	0.611 (0.512;0.709)
Facility 9	North West	99	0.606 (0.510;0.702)
Facility 10	Gauteng	84	0.595 (0.490;0.700)
Facility 11	Eastern Cape	68	0.574 (0.456;0.691)
Facility 12	Eastern Cape	49	0.571 (0.433;0.710)
Facility 13	Gauteng	1267	0.569 (0.542;0.596)
Facility 14	Eastern Cape	32	0.563 (0.391;0.734)
Facility 15	Gauteng	220	0.555 (0.489;0.620)
Facility 16	Gauteng	296	0.534 (0.477;0.591)
Facility 17	Eastern Cape	30	0.533 (0.355;0.712)
Facility 18	Eastern Cape	38	0.526 (0.368;0.685)
Facility 19	North West	71	0.521 (0.405;0.637)

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Facility 20	Eastern Cape	58	0.517 (0.389;0.646)
Facility 21	Gauteng	29	0.517 (0.335;0.699)
Facility 22	North West	264	0.515 (0.455;0.575)
Facility 23	Gauteng	364	0.511 (0.460;0.562)
Facility 24	Gauteng	189	0.508 (0.437;0.579)
Facility 25	KwaZulu-Natal	119	0.504 (0.414;0.594)

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

PUBLIC SECTOR TESTING: HEALTH DISTRICT-LEVEL RESULTS

The 25 municipalities and metropolitan health sub-districts with the highest adjusted proportion testing positive nationally in the week of 12-18 July 2020 are shown in Table 6. All sub-districts in this table have a proportion testing positive of >35%. The shifting geo-centre of the outbreak is indicated by the increasing dominance of provinces in the Eastern Cape and Gauteng in this list. None of the Cape Town sub-districts remain on the list below, and only two from the Western Cape.

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

Table 6. Health sub-districts with the highest proportion testing positive based on public sector data for the week of 12-18 July 2020

Health district or sub-district	Province	PTP (95% CI)	Previous week
Tlokwe City Council	North West	0.607 (0.530-0.685)	0.502 (0.419-0.585)
Makana	Eastern Cape	0.571 (0.487-0.656)	0.402 (0.341-0.462)
Amahlathi	Eastern Cape	0.554 (0.432-0.676)	0.470 (0.431-0.509)
Buffalo City	Eastern Cape	0.514 (0.481-0.547)	0.521 (0.498-0.544)
Merafong City	Gauteng	0.503 (0.425-0.582)	0.458 (0.399-0.516)
Lukanji	Eastern Cape	0.493 (0.421-0.566)	0.489 (0.440-0.537)
Ekurhuleni North 1	Gauteng	0.491 (0.438-0.543)	0.329 (0.295-0.364)

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Ndlambe	Eastern Cape	0.487 (0.381-0.593)	0.354 (0.300-0.408)
City of Matlosana	North West	0.483 (0.429-0.537)	0.424 (0.379-0.469)
Tshwane 4	Gauteng	0.451 (0.343-0.559)	0.371 (0.303-0.439)
Newcastle	KwaZulu-Natal	0.445 (0.345-0.546)	0.338 (0.307-0.369)
Emalahleni	Eastern Cape	0.442 (0.323-0.562)	0.375 (0.282-0.467)
Ekurhuleni East 1	Gauteng	0.434 (0.378-0.491)	0.424 (0.388-0.461)
Ekurhuleni South 1	Gauteng	0.433 (0.380-0.486)	0.458 (0.425-0.490)
Nkonkobe	Eastern Cape	0.420 (0.335-0.505)	0.433 (0.380-0.486)
Bergervier	Western Cape	0.417 (0.283-0.552)	0.202 (0.110-0.293)
Westonaria	Gauteng	0.416 (0.299-0.533)	0.389 (0.272-0.505)
Ekurhuleni East 2	Gauteng	0.414 (0.346-0.483)	0.411 (0.371-0.452)
Ekurhuleni North 2	Gauteng	0.414 (0.375-0.453)	0.367 (0.335-0.398)
Emfuleni	Gauteng	0.406 (0.369-0.443)	0.373 (0.348-0.398)
Inxuba Yethemba	Eastern Cape	0.403 (0.295-0.510)	0.375 (0.309-0.440)
Nxuba	Eastern Cape	0.395 (0.298-0.492)	0.346 (0.281-0.411)
Bitou	Western Cape	0.390 (0.285-0.495)	0.418 (0.342-0.495)
Nelson Mandela Bay A	Eastern Cape	0.383 (0.270-0.495)	0.394 (0.342-0.445)
Johannesburg E	Gauteng	0.377 (0.329-0.425)	0.438 (0.409-0.466)

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

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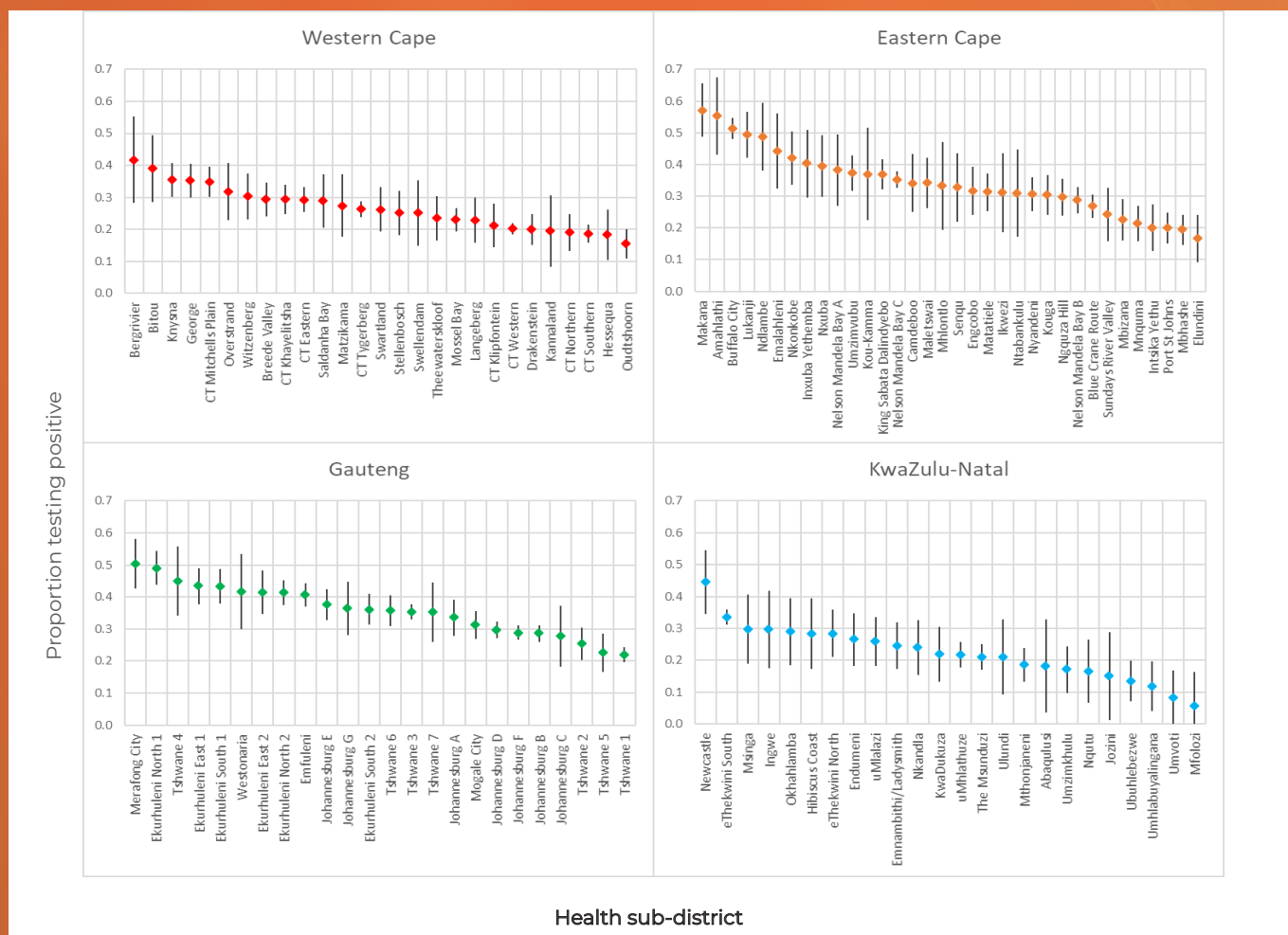


Figure 9. Proportions testing positive by health sub-districts in Western Cape, Eastern Cape, Gauteng, KwaZulu-Natal, North West, Free State, Limpopo, Mpumalanga and Northern Cape provinces based on public sector data for the week of 12-18 July 2020.

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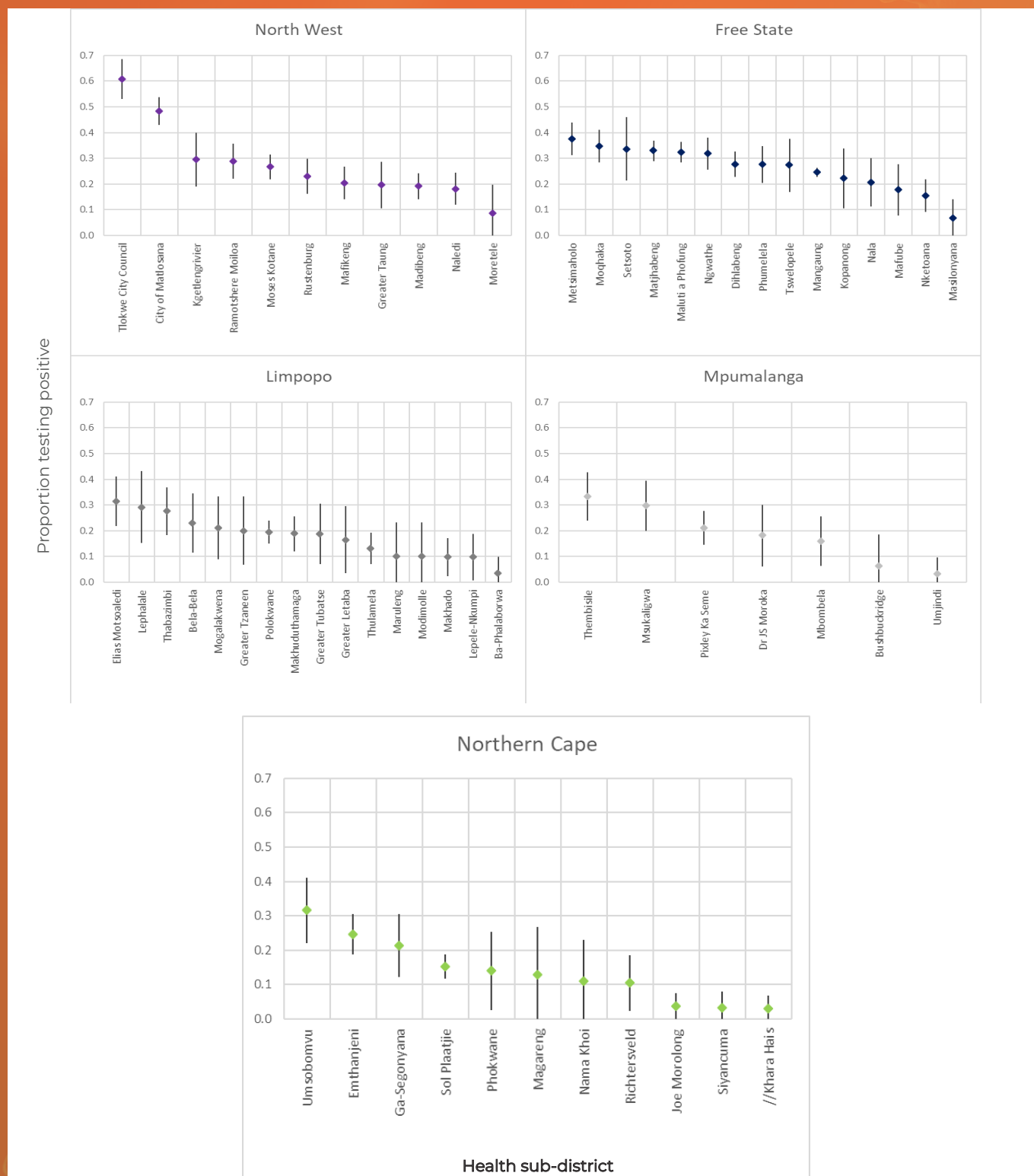


Figure 9. Proportions testing positive by health sub-districts in Western Cape, Eastern Cape, Gauteng, KwaZulu-Natal, North West, Free State, Limpopo, Mpumalanga and Northern Cape provinces based on public sector data for the week of 12-18 July 2020.

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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).

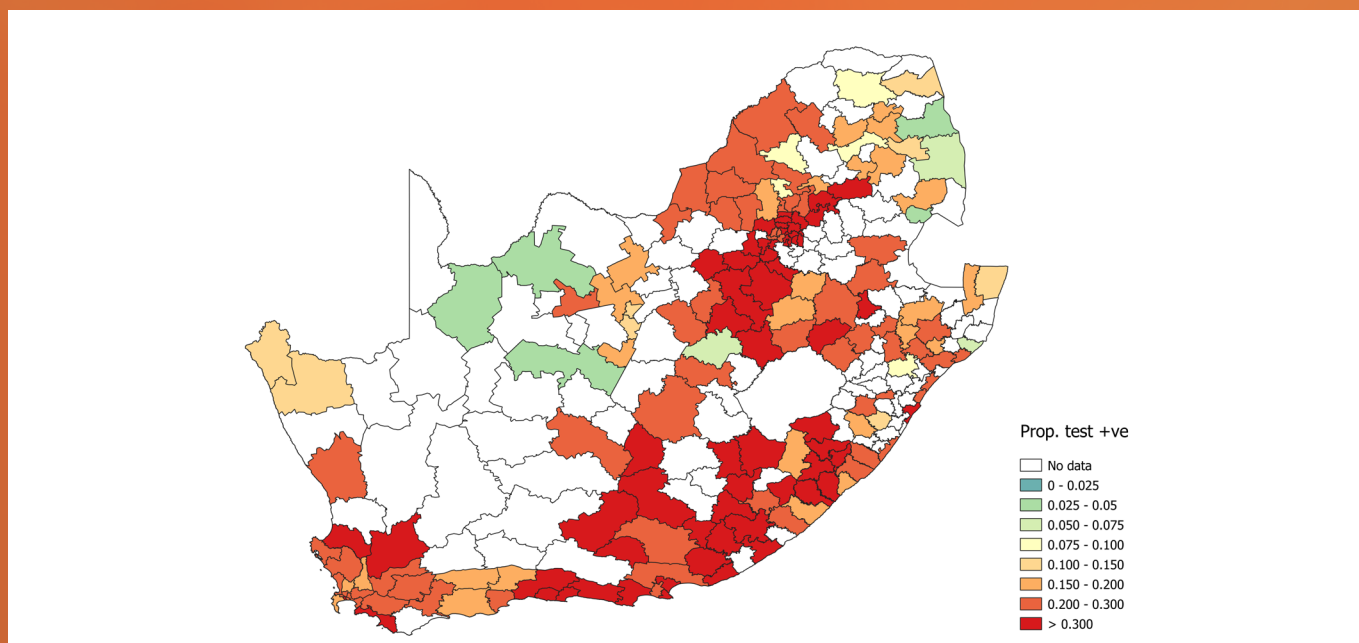


Figure 10. Proportion testing positive by health sub-district based on public sector data for the week of 12-18 July 2020, South Africa. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

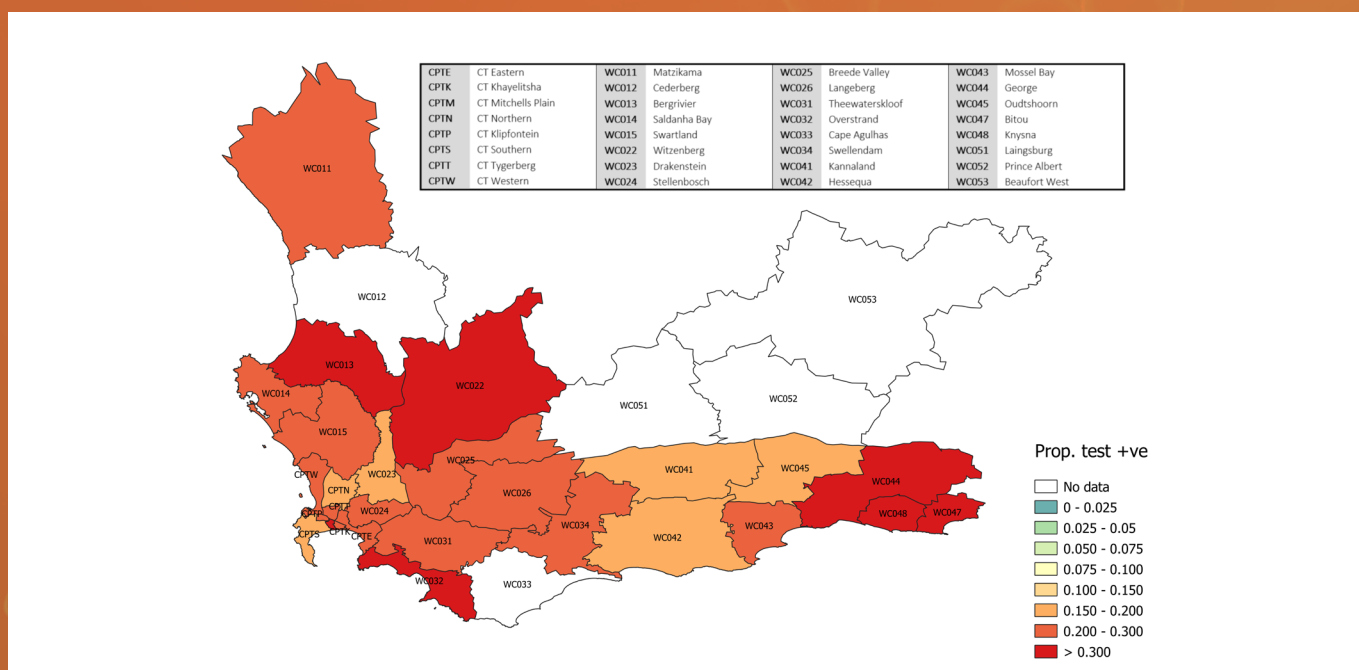


Figure 11. Health sub-districts in the Western Cape Province with a high proportion testing positive based on public sector data for the week of 12-18 July 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%

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BUF	Buffalo City	EC122	Mngquma	EC135	Intsika Yethu	EC155	Nyandeni
EC101	Camdeboo	EC123	Great Kei	EC136	Emalahleni	EC156	Mhlontlo
EC102	Blue Crane Route	EC124	Amahlathi	EC137	Engcobo	EC157	King Sabata Dalindyebo
EC103	Ikwezi	EC126	Ngqushwa	EC138	Sakhisizwe	EC441	Matatiele
EC104	Makana	EC127	Nkonkobe	EC141	Elundini	EC442	Umtzimvubu
EC105	Ndlambe	EC128	Nxuba	EC142	Senqu	EC443	Mbizana
EC106	Sundays River Valley	EC131	Inxuba Yethemba	EC143	Maletswai	EC444	Ntabankulu
EC107	Baviaans	EC132	Tsolwana	EC144	Gariep	NMAA	Nelson Mandela Bay A
EC108	Kouga	EC133	Inkwanca	EC153	Nguza Hill	NMAB	Nelson Mandela Bay B
EC109	Kou-Kamma	EC134	Lukangji	EC154	Port St Johns	NMAC	Nelson Mandela Bay C
EC121	Mthushhe						

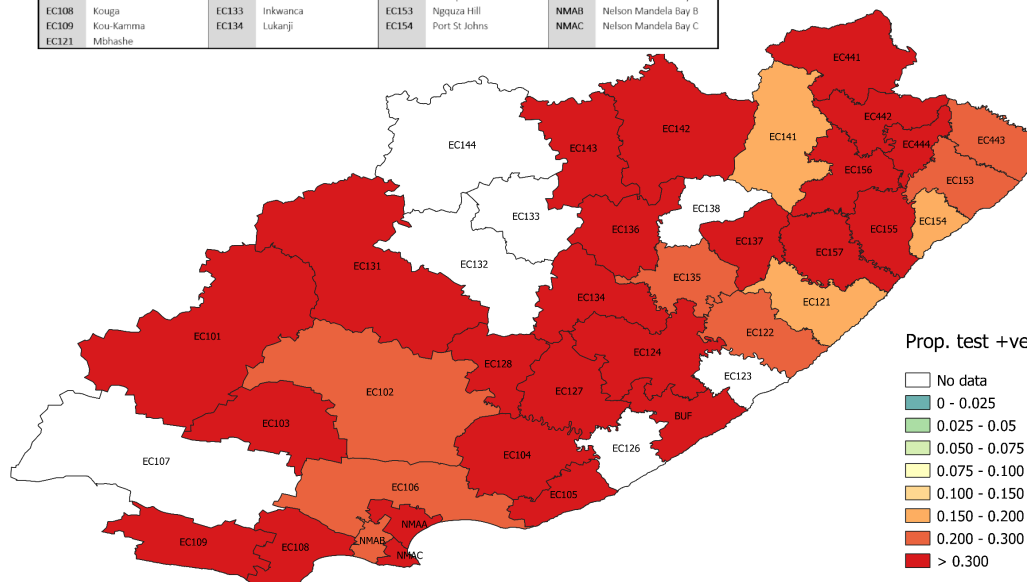


Figure 12. Health sub-districts in the Eastern Cape province with a high proportion testing positive based on public sector data for the week of 12-18 July 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

EKUE1	Ekurhuleni East 1	GT421	Emfuleni	JHBA	Johannesburg A	TSH1	Tshwane 1
EKUE2	Ekurhuleni East 2	GT422	Midvaal	JHBB	Johannesburg B	TSH2	Tshwane 2
EKUN1	Ekurhuleni North 1	GT423	Lesedi	JHBC	Johannesburg C	TSH3	Tshwane 3
EKUN2	Ekurhuleni North 2	GT481	Mogale City	JHBD	Johannesburg D	TSH4	Tshwane 4
EKUS1	Ekurhuleni South 1	GT482	Randfontein	JHBE	Johannesburg E	TSH5	Tshwane 5
EKUS2	Ekurhuleni South 2	GT483	Westonaria	JHBF	Johannesburg F	TSH6	Tshwane 6
		GT484	Merafong City	JHBG	Johannesburg G	TSH7	Tshwane 7

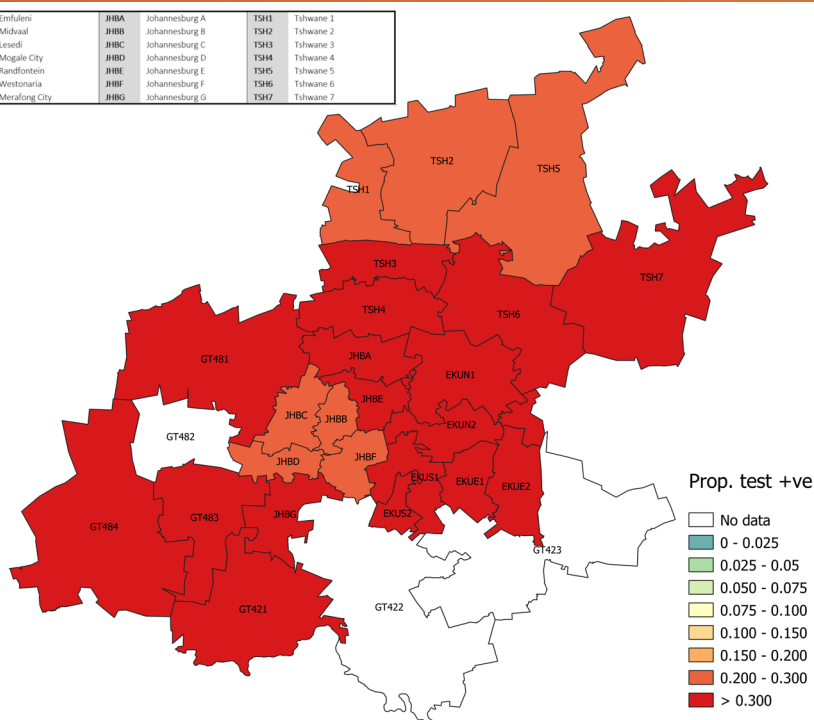


Figure 13. Health sub-districts in Gauteng Province with a high proportion testing positive based on public sector data for the week of 12-18 July 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

TESTING BY PATIENT ADMISSION STATUS

In week 29, 28.6% of tests in the public sector were performed for hospitalised patients and had increased from 22.6% in week 28 ($P < 0.001$) (Figure 14). Among the five provinces performing the largest volume of tests in week 28 (Western Cape, Eastern Cape, Free State, KwaZulu-Natal and Gauteng), the proportion of inpatient tests was highest in KwaZulu-Natal (41.3%) and Western Cape (39.3%) and had increased in all five provinces compared to the previous week. The percentage testing positive in week 29 was higher among inpatients (32.0%) than outpatients (28.8%) ($P < 0.001$), however had increased in both groups over the past few weeks (Figure 15). In the public sector in week 29 the mean laboratory turnaround time was shorter for inpatients (6.0 days) compared to outpatients (7.7 days), likely reflecting prioritised testing for severe patients.

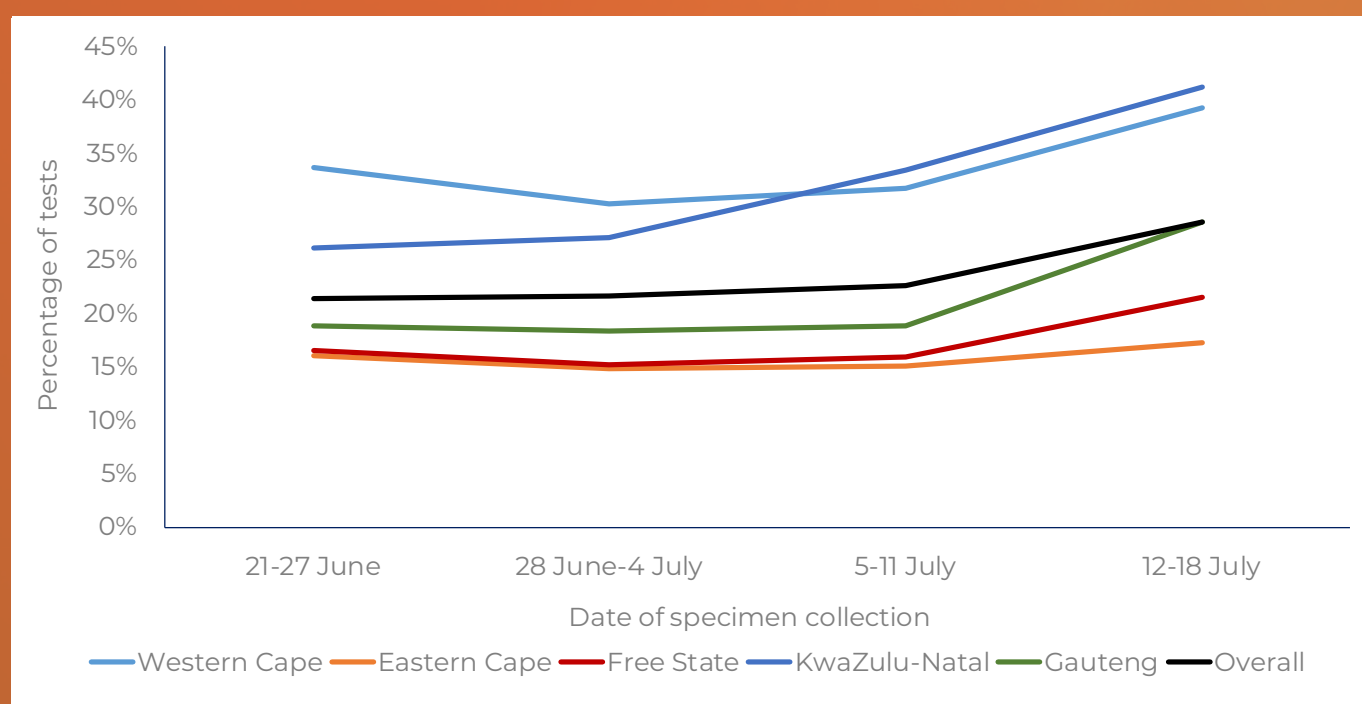


Figure 14. Percentage of inpatient tests performed in the public sector by province, 21 June-18 July 2020

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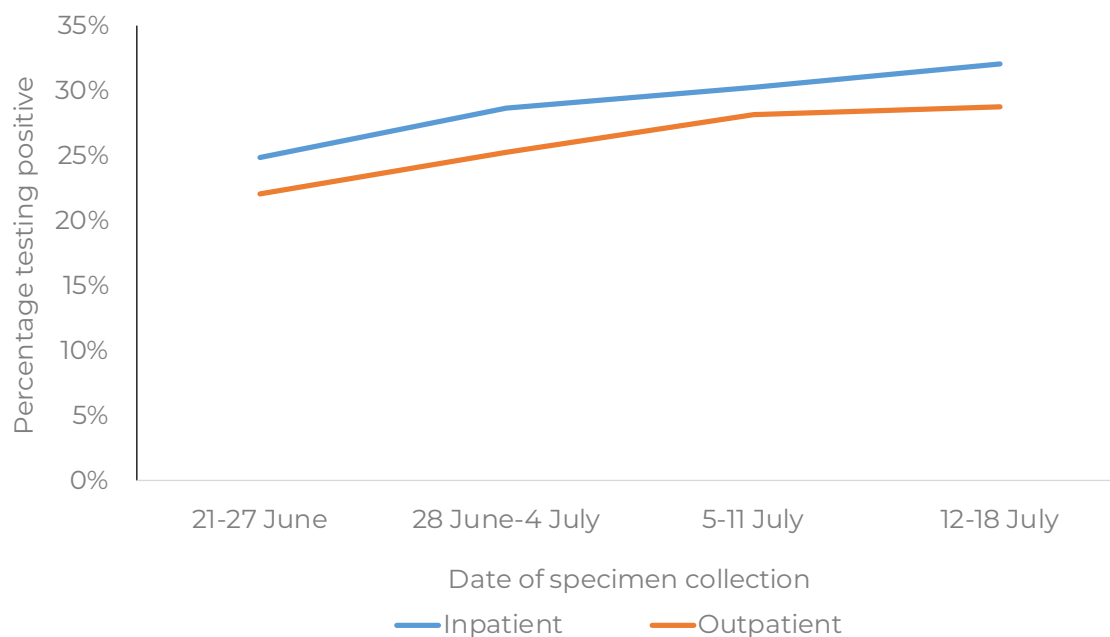


Figure 15. Percentage testing positive by patient admission status in the public sector, 21 June-18 July 2020

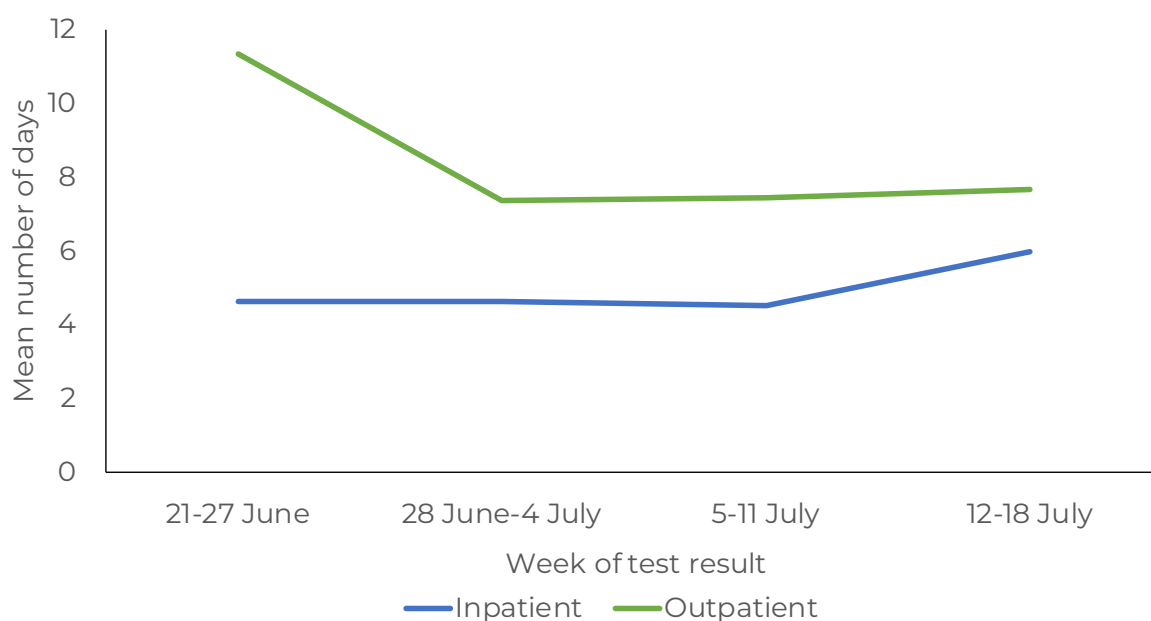


Figure 16. Mean number of days between date of specimen collection and date of test result, by patient admission status and date of test result in the public sector, South Africa, 21 June – 18 July 2020

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TESTING BY AGE AND SEX

The mean age of individuals tested in week 29 was 39.3 years and has remained relatively stable over the past 4 weeks in males and females. The mean age of cases in week 29 was 41.4 years and was higher in males (41.6 years) than females (41.3 years) ($P=0.008$) (Table 7). The sex ratio (the number of males per 100 females) of cases was 74.1 in week 29. An increased proportion testing positive was observed for both males and females across adult age groups aged ≥ 20 years in week 29 compared to the previous week (Figure 17).

Table 7. Mean age and sex ratio of individuals tested, South Africa, 21 June-18 July 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
26	21 June	38.58	39.12	40.17	40.23	76.8	74.5
27	28 June	37.99	38.71	39.79	39.89	76.3	72.9
28	5 July	38.52	38.78	40.45	40.14	77.0	73.8
29	12 July	39.26	39.38	41.64	41.29	77.1	74.1

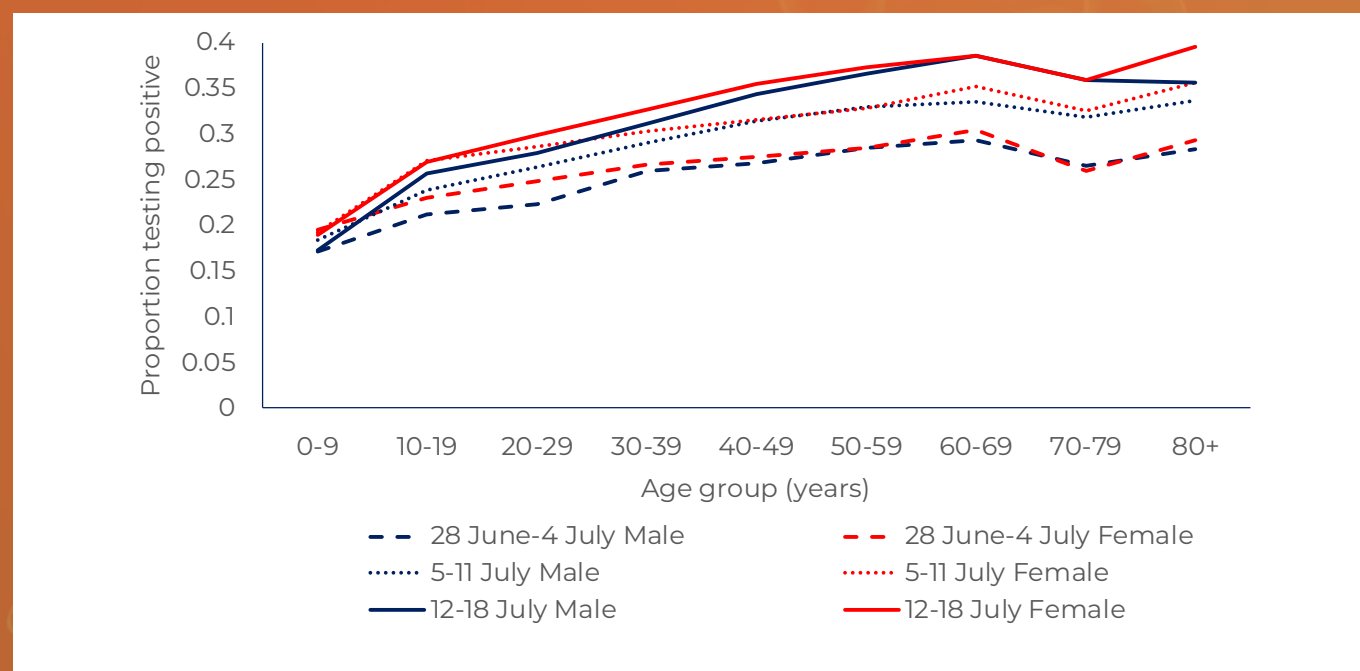


Figure 17. Weekly proportion testing positive by age group and sex, South Africa, 28 June-18 July 2020

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From week 26 to week 29, the percentage testing positive increased significantly from 23.3% to 33.2% in females ($P<0.001$) and from 22.6% to 31.9% in males ($P<0.001$) (Table 8). In week 29 the proportion testing positive was higher in females than males in the <20-year ($P=0.001$), 20-39 year ($P<0.001$) and 40-59 year ($P=0.024$) age groups.

Table 8. Percentage testing positive by sex and week, South Africa, 21 June-18 July 2020

Age (years)	21 - 27 June		28 June - 04 July		05 - 11 July		12 - 18 July	
	Male	Female	Male	Female	Male	Female	Male	Female
0-19	17.5%	19.1%	19.7%	22.0%	21.8%	24.6%	22.3%	24.4%
20-39	22.1%	22.8%	24.5%	25.9%	28.0%	29.7%	29.9%	31.6%
40-59	24.4%	24.7%	27.5%	27.9%	32.0%	32.1%	35.3%	36.2%
60-69	24.9%	26.1%	29.3%	30.4%	33.5%	35.1%	38.5%	38.6%
70+	23.5%	22.8%	27.0%	27.2%	32.3%	33.6%	35.8%	37.2%
Total	22.6%	23.3%	25.3%	26.5%	29.2%	30.5%	31.9%	33.2%

LIMITATIONS

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

CONCLUSIONS

There has been an improvement in testing volumes in recent weeks, and >75% of tests performed in week 29 were performed in the private sector. Five provinces including Western Cape, Eastern Cape, KwaZulu-Natal, Free State and Gauteng performed 85% of tests in the previous week. The overall percentage testing positive continued to increase, to 32.6% in week 29, with increases observed in both the public and private sectors. The North West (37.2%), Eastern Cape (36.6%) and Gauteng (35.2%) provinces had the highest percentage testing positive. While the percentage testing positive increased in eight provinces, decreases continued in the Western Cape. In week 29, 29% of public sector tests were performed for hospitalised patients. Laboratory turnaround times were similar to the previous week (2.0 days in the private sector and 7.2 days in the public sector). Although prioritised testing was reflected by the shorter turnaround time in the public sector for inpatients (6.0 days) compared to outpatients (7.7 days), turnaround times were high in both groups.