

COVID-19 TESTING SUMMARY

SOUTH AFRICA WEEK 34 2020

OVERVIEW OF REPORT

This report summarises national laboratory testing for SARS-CoV-2, the virus causing COVID-19, in South Africa. This report is based on data for specimens reported up to 22 August 2020 (Week 34 of 2020).

HIGHLIGHTS

- In the period 1 March 2020 through 22 August 2020, 3,141,743 laboratory tests for SARS-CoV-2 have been conducted nationally
- Gauteng performed the largest number of tests in week 34 (30.0%), followed by KwaZulu-Natal (20.6%) and Western Cape (14.5%)
- Free State (340 per 100,000 persons) and Northern Cape (324 per 100,000 persons) provinces had the highest testing rates, although all nine provinces have shown reduced testing rates in recent weeks
- The percentage testing positive increased to a peak of 31.4% in week 29, and has subsequently decreased week on week to 17.6% in week 34
- Free state (27.5%), Northern Cape (25.8%), Mpumalanga (22.0%) and North West (20.7%) provinces had the highest percentage testing positive
- Percentage testing positive decreased in seven provinces (Western Cape, Eastern Cape, Free State, KwaZulu-Natal, North West, Gauteng and Mpumalanga) and remained unchanged in Northern Cape and Limpopo provinces in the past week
- The mean turnaround time decreased further in week 34 and was 2.5 days in the public sector and 1.7 days in the private sector

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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 17th May.

CST was implemented differently in different provinces, and ranged from mass screening approaches (including asymptomatic individuals) to screening of individuals in contact with a confirmed case to targeted testing of clusters of cases. Respiratory specimens were submitted to testing laboratories.

Testing was performed using reverse transcriptase real-time PCR, which detects SARS-CoV-2 viral genetic material. Laboratories used any one of several in-house and commercial PCR assays to test for the presence of SARS-CoV-2 RNA.

Test results were automatically fed into a data warehouse after result authorisation. We excluded specimens collected outside South Africa and duplicate test results for an individual. Date of specimen receipt in the laboratory was used when date of specimen collection was missing.

Proportion testing positive (PTP) was calculated as the number of positive tests/total number of tests and presented as percentage by multiplying with 100. We used 2019 mid-year population estimates from Statistics South Africa to calculate the testing

rate, expressed as tests per 100 000 persons. Patient admission status was determined for public sector tests based on the reported patient facility. Laboratory turnaround times were calculated as the mean number of days between specimen collection and reporting of the result. Categorical variables were compared using the chi-squared test, and continuous variables with the students t-test, with a P-value < 0.05 considered statistically significant.

Health district and sub-district level results included only public sector data, and were mapped based on the testing facility. Estimates of overall prevalence were derived using regression techniques.

Estimates were adjusted to produce district-specific positive test prevalence based on the average age profile, the average sex composition, and the average balance between clinical and CST tests across the entire public testing data for the week. This adjustment allows more accurate comparison of the proportion testing positive across districts.

The report includes tests conducted between 1 March 2020 (week 10), the week when the first case of COVID-19 was confirmed, and 22 August 2020 (week 34).

Testing volumes and proportion testing positive

From 1 March through 22 August 2020, 3,141,743 laboratory tests for SARS-CoV-2 were performed. The number of tests performed increased to week 21, however decreased in weeks 22 and 23 due to a limited supply of extraction and testing kits. Increased volumes of tests were observed week on week from week 24 to week 28, with the highest number of tests performed in week 28 (n=272,775).

Testing volumes have continued to decrease since week 29, with 102,467 tests performed in week 34. 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).

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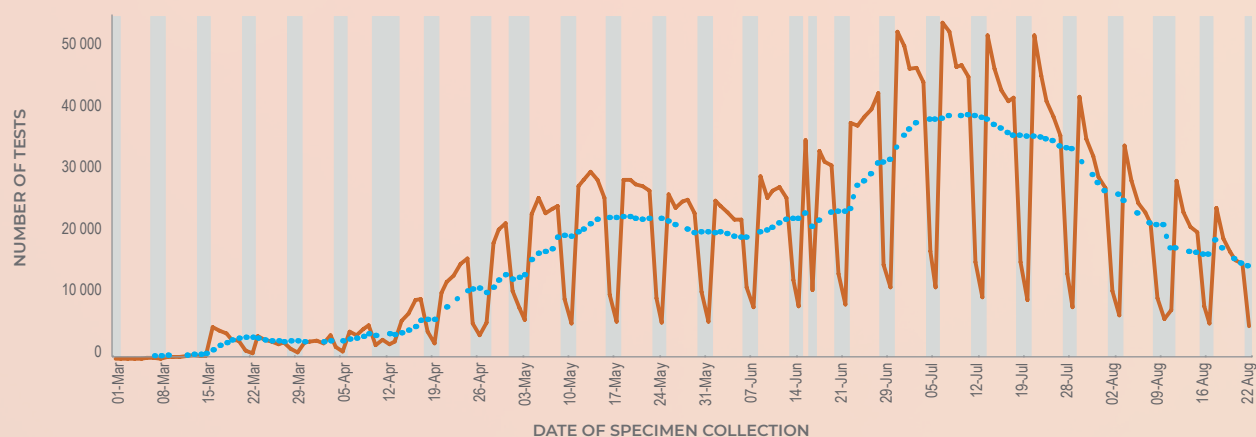


Figure 1. Number of laboratory tests conducted by date of specimen collection, South Africa, 1 March – 22 August 2020. Blue dotted line shows the 7-day moving average of the number of tests conducted. Grey bars highlight weekend days and public holidays.

The overall percentage testing positive from week 10 through 34 was 18.8% (Table 1). The percentage testing positive increased week on week from week 18 to a peak of 31.4% in week 29. Since week 29, there has been a 13.8% decrease in the percentage testing positive, and the percentage testing positive decreased from 20.3% in week 33 to 17.6% in week 34 ($P < 0.001$) (Figure 2).

Table 1. Weekly number of tests conducted and positive tests, South Africa, 1 March – 22 August 2020

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)
10	01-Mar	409 (0.0)	9	2.2
11	08-Mar	2327 (0.1)	88	3.8
12	15-Mar	21326 (0.7)	826	3.9
13	22-Mar	17041 (0.5)	467	2.7
14	29-Mar	17380 (0.6)	395	2.3
15	05-Apr	24615 (0.8)	566	2.3
16	12-Apr	41885 (1.3)	1045	2.5
17	19-Apr	75934 (2.4)	1938	2.6
18	26-Apr	89500 (2.8)	2902	3.2
19	03-May	136939 (4.4)	5555	4.1
20	10-May	156999 (5.0)	7402	4.7
21	17-May	156018 (5.0)	10548	6.8
22	24-May	141439 (4.5)	11731	8.3
23	31-May	135596 (4.3)	13522	10.0
24	07-Jun	156523 (5.0)	20552	13.1
25	14-Jun	164290 (5.2)	29876	18.2
26	21-Jun	220621 (7.0)	50470	22.9
27	28-Jun	269093 (8.6)	69426	25.8
28	05-Jul	272775 (8.7)	79887	29.3
29	12-Jul	250459 (8.0)	78586	31.4
30	19-Jul	236432 (7.5)	72711	30.8
31	26-Jul	185659 (5.9)	53852	29.0
32	02-Aug	149746 (4.8)	37090	24.8
33	09-Aug	116270 (3.7)	23611	20.3
34	16-Aug	102467 (3.3)	18038	17.6
Total		3141743 (100.0)	591093	18.8

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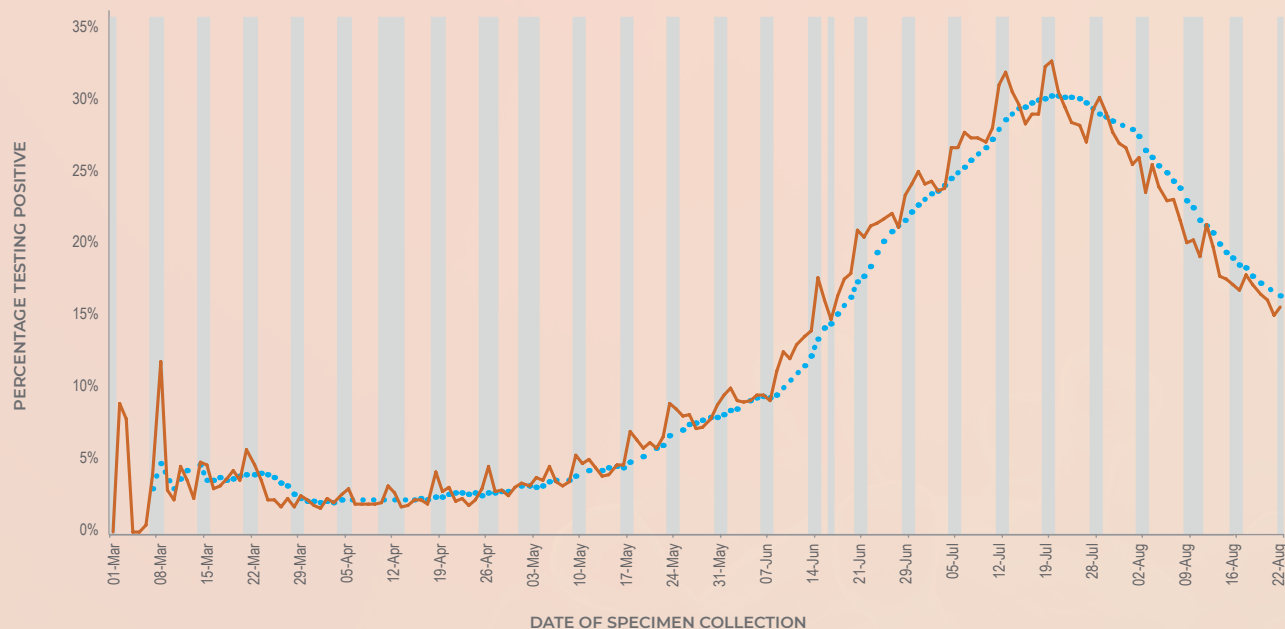


Figure 2. Percentage of laboratory tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March – 22 August 2020. Blue dotted line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

Testing in private and public sectors

From 1 March through 22 August, 1,434,067 laboratory tests were conducted in public sector laboratories, with 16.7% testing positive. Over this same period, private sector laboratories conducted 1,707,676 tests, with 20.6% testing positive (Table 2). Overall the public sector has conducted 45.6% of tests and accounted for 40.5% of positive tests. The peak percentage testing positive was observed in week 30 in the public sector (29.6%), and in week 29 in the private sector (33.0%). From week 33 to week 34, the percentage testing positive decreased by 2.1% in the public sector and 3.3% in the private sector, and in week 34 was similar in the private (17.8%) and public (17.3%) sectors.

The mean turnaround time continued to improve in the public sector, and in week 34 was 2.1 days overall; 2.5 days in the public sector and 1.7 days in the private sector (Figure 3). The improvement in turnaround time in the public sector was largely driven by a reduction in turnaround time in KwaZulu-Natal province from 10.2 days in week 31 to 3.7 days in week 34 (Figure 4). Among the five provinces that have conducted the largest number of tests, in the past week the turnaround time for public sector tests remained highest in KwaZulu-Natal (3.7 days) and lowest in Western Cape (1.1 days). Of the 28 NHLS laboratories performing testing for SARS-CoV-2, 20 (71%) had improved turnaround times in week 34 compared to the previous week, and 18 (64%) public sector laboratories had 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 – 22 August 2020

Week number	Week beginning	Public sector		Private sector		Public sector percentage of		Ratio of PTP ^a
		Tests	Cases n (%)	Tests	Cases n (%)	Tests (%)	Cases (%)	
10	01-Mar	251	5 (2.0)	158	4 (2.5)	61.4	55.6	0.787
11	08-Mar	350	12 (3.4)	1977	76 (3.8)	15.0	13.6	0.892
12	15-Mar	1345	51 (3.8)	19981	775 (3.9)	6.3	6.2	0.978
13	22-Mar	3359	124 (3.7)	13682	343 (2.5)	19.7	26.6	1.473
14	29-Mar	5616	159 (2.8)	11764	236 (2.0)	32.3	40.3	1.411
15	05-Apr	11350	318 (2.8)	13265	248 (1.9)	46.1	56.2	1.499
16	12-Apr	23783	609 (2.6)	18102	436 (2.4)	56.8	58.3	1.063
17	19-Apr	54196	1480 (2.7)	21738	458 (2.1)	71.4	76.4	1.296
18	26-Apr	66252	2293 (3.5)	23248	609 (2.6)	74.0	79.0	1.321
19	03-May	92362	4257 (4.6)	44577	1298 (2.9)	67.4	76.6	1.583
20	10-May	104971	5114 (4.9)	52028	2288 (4.4)	66.9	69.1	1.108
21	17-May	95471	6634 (6.9)	60547	3914 (6.5)	61.2	62.9	1.075
22	24-May	74303	5964 (8.0)	67136	5767 (8.6)	52.5	50.8	0.934
23	31-May	60299	6116 (10.1)	75297	7406 (9.8)	44.5	45.2	1.031
24	07-Jun	60063	7372 (12.3)	96460	13180 (13.7)	38.4	35.9	0.898
25	14-Jun	56065	11097 (19.8)	108225	18779 (17.4)	34.1	37.1	1.141
26	21-Jun	82725	18908 (22.9)	137896	31562 (22.9)	37.5	37.5	0.999
27	28-Jun	97447	25188 (25.8)	171646	44238 (25.8)	36.2	36.3	1.003
28	05-Jul	108145	30331 (28.0)	164630	49556 (30.1)	39.6	38.0	0.932
29	12-Jul	101468	29473 (29.0)	148991	49113 (33.0)	40.5	37.5	0.881
30	19-Jul	96409	28503 (29.6)	140023	44208 (31.6)	40.8	39.2	0.936
31	26-Jul	74082	21398 (28.9)	111577	32454 (29.1)	39.9	39.7	0.993
32	02-Aug	64198	15807 (24.6)	85548	21283 (24.9)	42.9	42.6	0.990
33	09-Aug	53735	10443 (19.4)	62535	13168 (21.1)	46.2	44.2	0.923
34	16-Aug	45822	7946 (17.3)	56645	10092 (17.8)	44.7	44.1	0.973
Total		1434067	239602 (16.7)	1707676	351491 (20.6)	45.6	40.5	0.812

^aRatio of percentage testing positive (PTP) in the public sector to the private sector calculated as (no. of cases/total tests in public sector)/ (no. of cases/total tests in private sector)

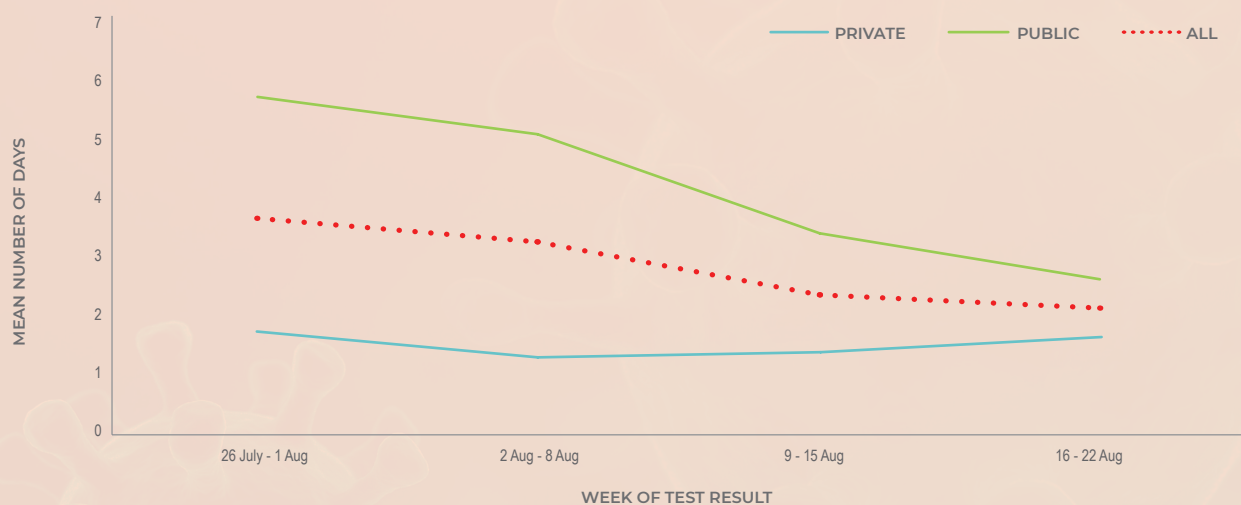


Figure 3. Mean number of days between date of specimen collection and date of test result, by week of test result, South Africa, 26 July – 22 August 2020

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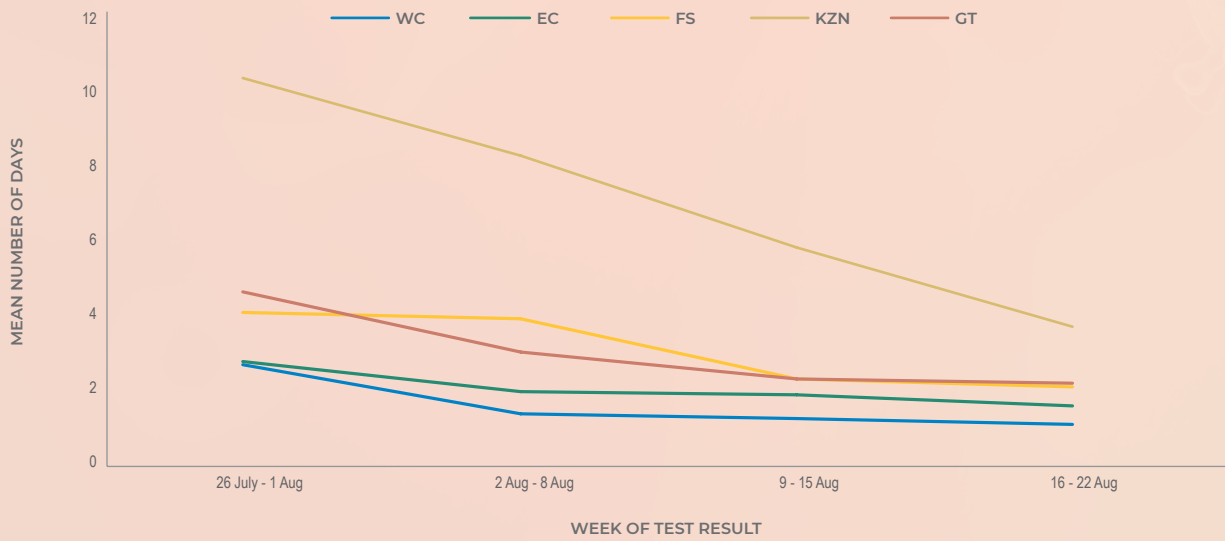


Figure 4. Mean number of days between date of specimen collection and date of test result, by week of test result and province, public sector, South Africa, 26 July – 22 August 2020. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal, GT, Gauteng

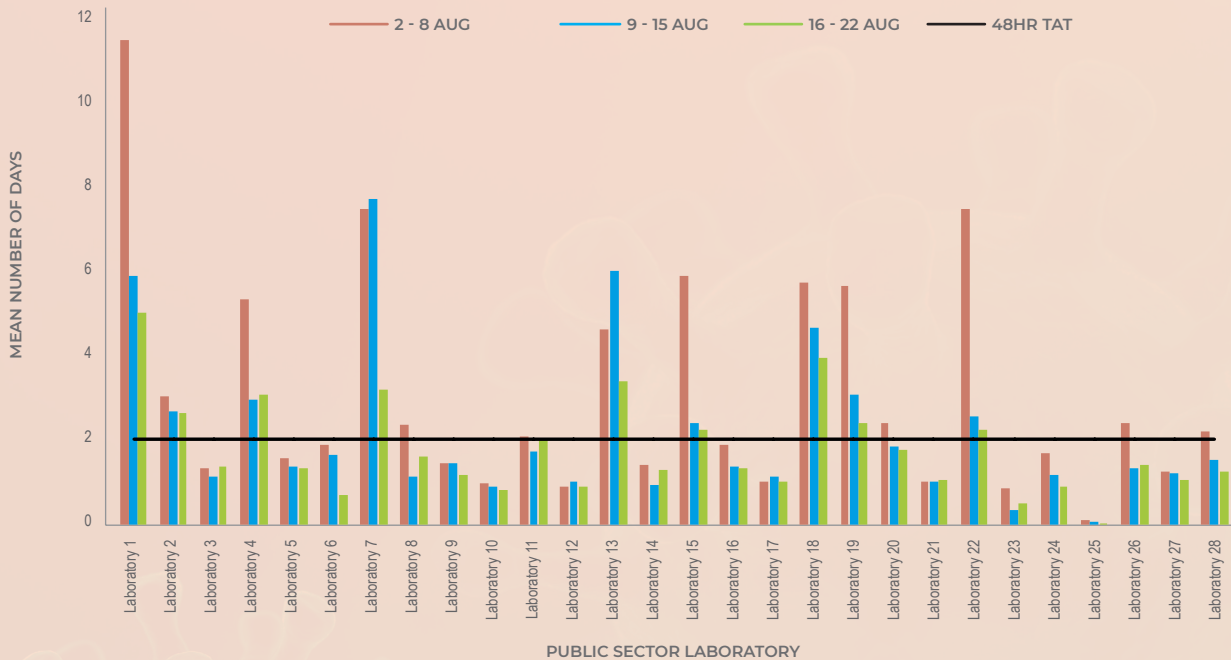


Figure 5. Mean number of days between date of specimen collection and date of test result, by public sector laboratory, 2 August - 22 August 2020. The horizontal black line indicates 48-hour turnaround time (TAT).

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Testing by province

Gauteng continued to perform the largest number of tests in week 34 accounting for 30.0% of tests, followed by KwaZulu-Natal (20.6%) and Western Cape (14.5%) (Table 3). Five provinces including Western Cape, Eastern Cape, Eastern Cape, KwaZulu-Natal, Free State and Gauteng performed the majority of tests (81.8%) in week 34, with Free State (340 per 100,000 persons) and Northern Cape (324 per 100,000 persons) having the highest testing rate (Figure 6). All nine provinces have shown reduced testing rates over the recent weeks.

Free state (27.5%), Northern Cape (25.8%), Mpumalanga (22.0%) and North West (20.7%) provinces continued to have the highest percentage testing positive in week 34 (Figure 7). Compared to the previous week, the percentage testing positive decreased in seven provinces (Western Cape ($P<0.001$), Eastern Cape ($P<0.001$), Free State ($P=0.004$), KwaZulu-Natal ($P<0.001$), North West ($P<0.001$), Gauteng ($P<0.001$) and Mpumalanga ($P<0.001$)). The percentage testing positive in week 34 compared to week 33 did not change in Northern Cape and Limpopo provinces. The percentage testing positive was higher than the national average, not weighted for population size, in the Northern Cape, Free State, North West, Mpumalanga and Limpopo provinces (Figure 7).

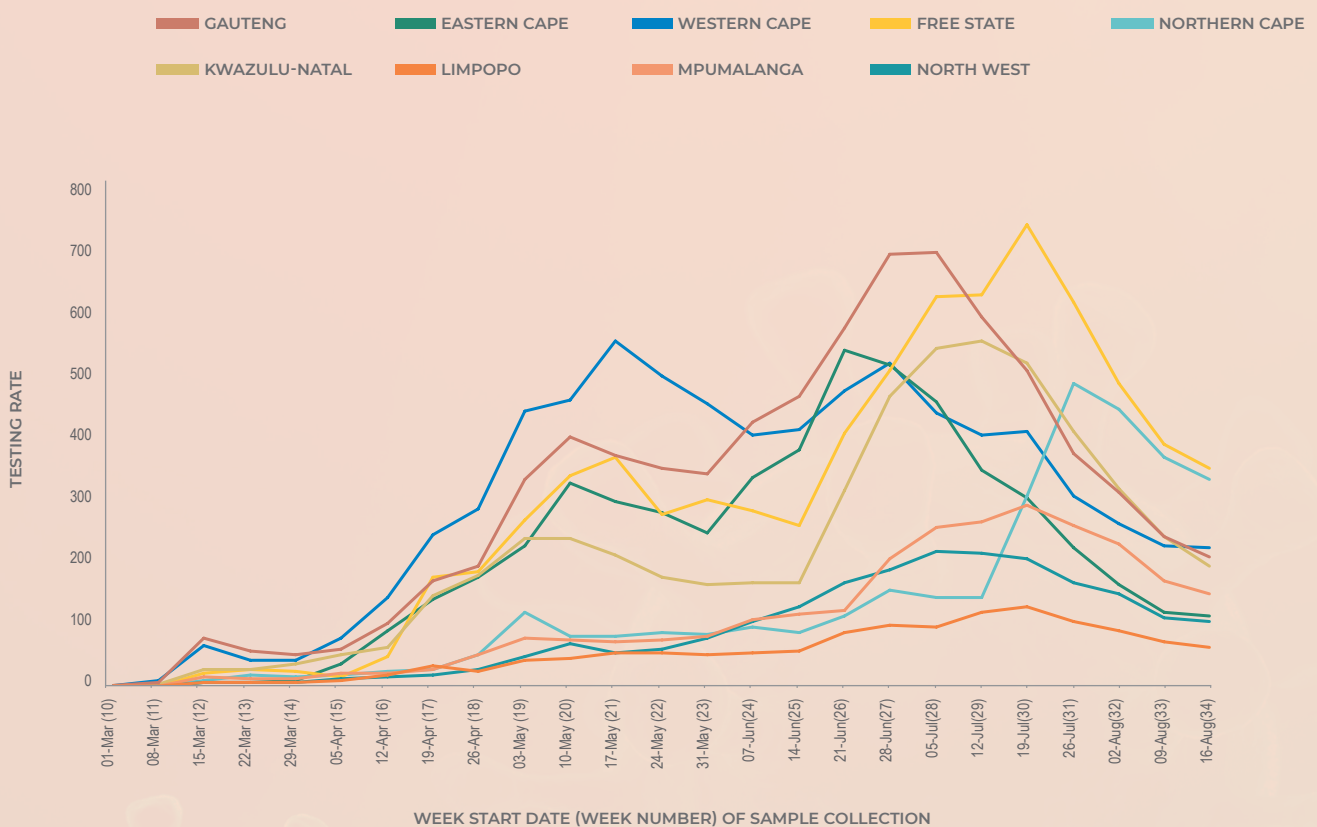


Figure 6. Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 1 March – 22 August 2020.

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Table 3. Weekly number of tests performed and positive tests, by province, South Africa, 2 August - 22 August 2020

Province	Population ^a	2-8 Aug		9-15 Aug		16-22 Aug		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	6844272	17491	2951 (16.9)	14991	2241 (14.9)	14862	1888 (12.7)	217
Eastern Cape	6712276	10605	2462 (23.2)	7810	1296 (16.6)	7278	994 (13.7)	108
Northern Cape	1263875	5494	1551 (28.2)	4545	1110 (24.4)	4100	1059 (25.8)	324
Free State	2887465	13656	4295 (31.5)	10929	3205 (29.3)	9803	2699 (27.5)	340
KwaZulu-Natal	11289086	35052	9430 (26.9)	26318	5101 (19.4)	21132	3528 (16.7)	187
North West	4027160	5763	1553 (26.9)	4288	1183 (27.6)	4098	850 (20.7)	102
Gauteng	15176115	45918	10597 (23.1)	35381	6493 (18.4)	30764	4864 (15.8)	203
Mpumalanga	4592187	10224	3104 (30.4)	7569	2087 (27.6)	6573	1447 (22.0)	143
Limpopo	5982584	5111	1085 (21.2)	4164	856 (20.6)	3648	688 (18.9)	61
Unknown		432	62 (14.4)	275	39 (14.2)	209	21 (10.0)	
Total	58750220	149746	37090 (24.8)	116270	23611 (20.3)	102467	18038 (17.6)	174

^a2019 Mid-year population Statistics SA



Figure 7. Weekly percentage testing positive, by province, South Africa, 2 August - 22 August 2020. The horizontal blue line shows the national mean for week 34, beginning 16 August 2020.

Testing in the public sector

In the public sector, the percentage testing positive continued to decrease from 19.4% in week 33 to 17.3% in week 34 ($P < 0.001$) (Table 4). The percentage testing positive in week 34 was highest in North West

(27.5%), Free State (26.2%), Northern Cape (22.0%), Limpopo (21.2%) and Mpumalanga (19.9%) provinces. The percentage testing positive in the public sector remains higher than the national average, not weighted for population size, in the Northern Cape, Free State, North West, Mpumalanga and Limpopo provinces (Figure 8).

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Table 4. Weekly number of tests conducted and positive tests in the public sector, by province, South Africa, 2 - 22 August 2020

Province	2-8 Aug		9-15 Aug		16-22 Aug	
	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	7488	1419 (19.0)	6662	1073 (16.1)	6200	821 (13.2)
Eastern Cape	6899	1571 (22.8)	5108	859 (16.8)	4730	715 (15.1)
Northern Cape	3213	840 (26.1)	2570	504 (19.6)	1820	401 (22.0)
Free State	6914	1935 (28.0)	5941	1538 (25.9)	5667	1484 (26.2)
KwaZulu-Natal	15616	4319 (27.7)	12960	2295 (17.7)	10596	1731 (16.3)
North West	1690	525 (31.1)	1461	457 (31.3)	1186	326 (27.5)
Gauteng	17110	3826 (22.4)	14573	2562 (17.6)	12009	1729 (14.4)
Mpumalanga	2955	886 (30.0)	2495	716 (28.7)	2021	402 (19.9)
Limpopo	2313	486 (21.0)	1965	439 (22.3)	1593	337 (21.2)
Unknown	0	0 (0.0)	0	0 (0.0)	0	0 (0.0)
Total	64198	15807 (24.6)	53735	10443 (19.4)	45822	7946 (17.3)



Figure 8. Weekly percentage testing positive in the public sector, by province, South Africa, 2 August - 22 August 2020. The horizontal blue line shows the national mean for week 34, beginning 16 August 2020.

Public facilities with high proportions testing positive

Table 5 shows the 25 public clinics, hospitals and testing laboratories (where specimens were not tied to a particular facility), that had 25 or more specimens tested and at least five positive results in the week

of 16-22 August, with the highest proportion testing positive nationally.

This week's list is dominated by facilities in the Free State (10), with 4 in the North West, 3 in Mpumalanga, 2 in each of the Western Cape, Northern Cape and Limpopo, and 1 in each of Gauteng and KwaZulu-Natal.

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Table 5. Public healthcare facilities with a high proportion testing positive, 16-22 August 2020

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Free State	26	0.577 (0.387;0.767)
Facility 2	Free State	35	0.543 (0.378;0.708)
Facility 3	KwaZulu-Natal	81	0.531 (0.422;0.640)
Facility 4	North West	51	0.529 (0.392;0.666)
Facility 5	Western Cape	65	0.508 (0.386;0.629)
Facility 6	North West	34	0.500 (0.332;0.668)
Facility 7	North West	38	0.500 (0.341;0.659)
Facility 8	Free State	30	0.467 (0.288;0.645)
Facility 9	Limpopo	28	0.464 (0.280;0.649)
Facility 10	Free State	26	0.462 (0.270;0.653)
Facility 11	Free State	47	0.447 (0.305;0.589)
Facility 12	Mpumalanga	25	0.440 (0.245;0.635)
Facility 13	Mpumalanga	39	0.436 (0.280;0.592)
Facility 14	Northern Cape	110	0.427 (0.335;0.520)
Facility 15	Western Cape	181	0.425 (0.353;0.497)
Facility 16	Northern Cape	37	0.405 (0.247;0.564)
Facility 17	Free State	50	0.400 (0.264;0.536)
Facility 18	Mpumalanga	53	0.396 (0.265;0.528)
Facility 19	Gauteng	33	0.394 (0.227;0.561)
Facility 20	Free State	61	0.393 (0.271;0.516)
Facility 21	Free State	59	0.390 (0.265;0.514)
Facility 22	Free State	54	0.389 (0.259;0.519)
Facility 23	Limpopo	31	0.387 (0.216;0.559)
Facility 24	Free State	26	0.385 (0.198;0.572)
Facility 25	North West	54	0.370 (0.242;0.499)

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

Public sector testing: Health district-level results

The results, for the 25 municipalities and metropolitan health sub-districts showing the greatest proportions testing positive in the week of 16-22 August 2020 are shown in Table 6. The list of districts is dominated by those in the Free State, Mpumalanga and North West. Only one district (Maquassi Hills in North

West) shows a proportion testing positive >50%, and a further 4 districts with a proportion testing positive >40%. There are continued indications of a further escalation in the rural Western Cape (Beaufort West and Oudtshoorn).

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Table 6. Health sub-districts with the highest proportion testing positive based on public sector data for the week of 16-22 August 2020

Health district or sub-district	Province	PTP (95% CI)	Previous week
Maquassi Hills	North West	0.528 (0.383-0.674)	...
Beaufort West	Western Cape	0.418 (0.328-0.507)	0.283 (0.174-0.392)
Greater Tubatse	Limpopo	0.410 (0.274-0.546)	0.189 (0.102-0.275)
Ngwathe	Free State	0.407 (0.322-0.492)	0.352 (0.269-0.435)
Govan Mbeki	Mpumalanga	0.403 (0.284-0.523)	0.480 (0.359-0.601)
Nketoana	Free State	0.381 (0.291-0.471)	0.182 (0.128-0.235)
Greater Taung	North West	0.366 (0.246-0.486)	...
Mafikeng	North West	0.348 (0.270-0.427)	0.296 (0.244-0.347)
Oudtshoorn	Western Cape	0.343 (0.286-0.399)	0.328 (0.274-0.382)
Greater Tzaneen	Limpopo	0.320 (0.211-0.429)	0.326 (0.226-0.427)
Masilonyana	Free State	0.318 (0.224-0.412)	0.227 (0.104-0.351)
Umsobomvu	Northern Cape	0.311 (0.172-0.451)	0.186 (0.110-0.262)
Ekurhuleni East 1	Gauteng	0.311 (0.231-0.392)	0.289 (0.225-0.353)
Lekwa	Mpumalanga	0.311 (0.206-0.416)	...
Mkhondo	Mpumalanga	0.308 (0.161-0.455)	...
Msukaligwa	Mpumalanga	0.303 (0.228-0.379)	0.327 (0.243-0.411)
Amahlathi	Eastern Cape	0.295 (0.145-0.444)	0.137 (0.086-0.188)
Metsimaholo	Free State	0.294 (0.209-0.379)	0.271 (0.195-0.346)
City of Matlosana	North West	0.294 (0.248-0.341)	0.347 (0.301-0.392)
Mohokare	Free State	0.294 (0.172-0.416)	0.301 (0.199-0.402)
Tswelopele	Free State	0.291 (0.214-0.369)	0.260 (0.189-0.332)
Setsoto	Free State	0.287 (0.219-0.356)	0.274 (0.211-0.337)
Dihlabeng	Free State	0.285 (0.238-0.333)	0.265 (0.219-0.312)
Phokwane	Northern Cape	0.281 (0.167-0.396)	0.321 (0.230-0.411)
Pixley Ka Seme	Mpumalanga	0.272 (0.201-0.343)	0.293 (0.231-0.356)

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.

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

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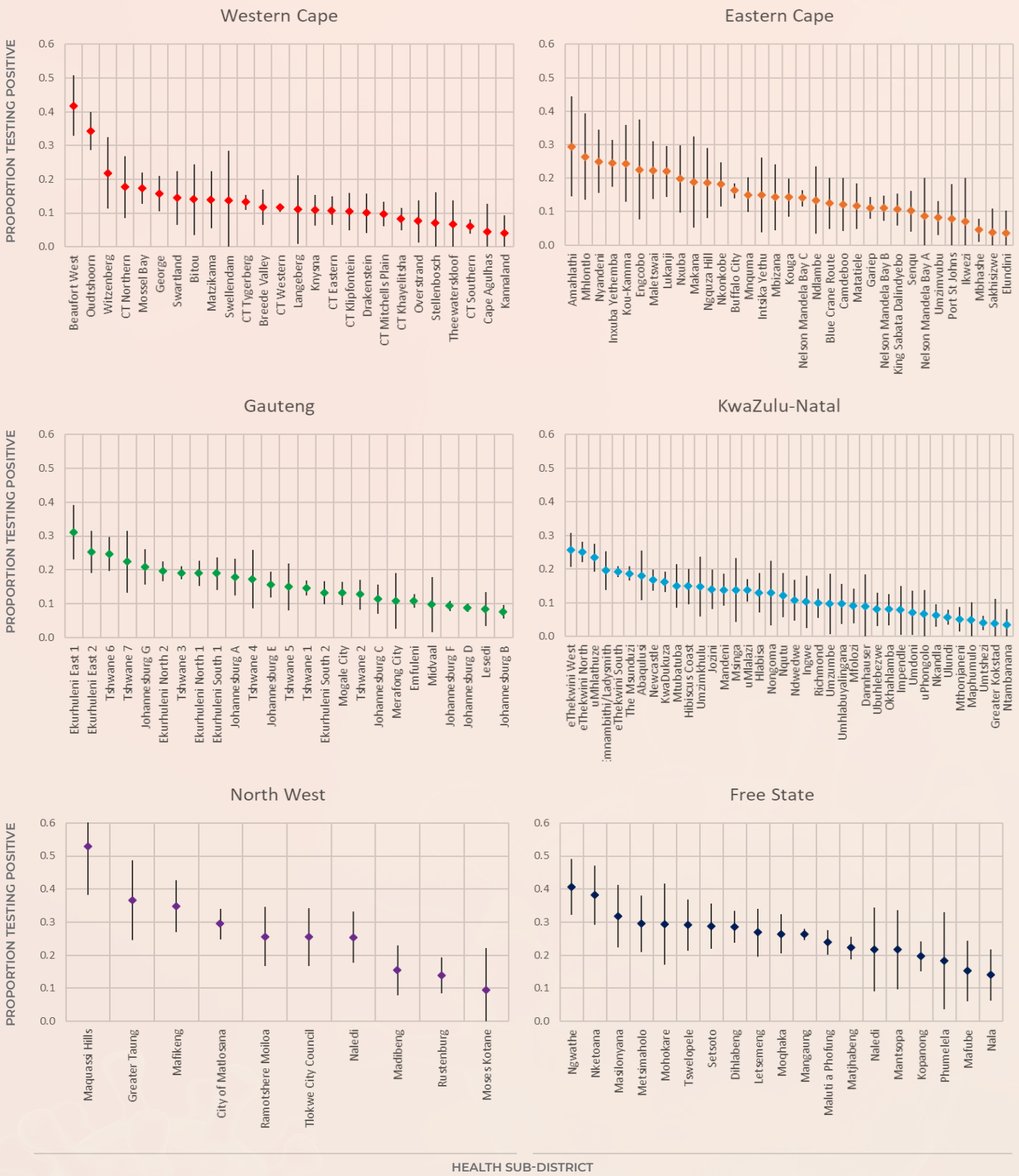


Figure 9. Proportions testing positive by health sub-districts in Western Cape, Eastern Cape, Gauteng, KwaZulu-Natal, North West, Free State, Limpopo, Mpumalanga and Northern Cape provinces based on public sector data for the week of 16-22 August 2020.

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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 16-22 August 2020.

The spatial pattern of adjusted proportions testing positive in public facilities by health district and sub-district are shown for South Africa (Figure 10), Western Cape (Figure 11), Eastern Cape (Figure 12), Northern

Cape (Figure 13), Free State (Figure 14), KwaZulu-Natal (Figure 15), North West (Figure 16), Gauteng (Figure 17), Mpumalanga (Figure 18) and Limpopo (Figure 19).

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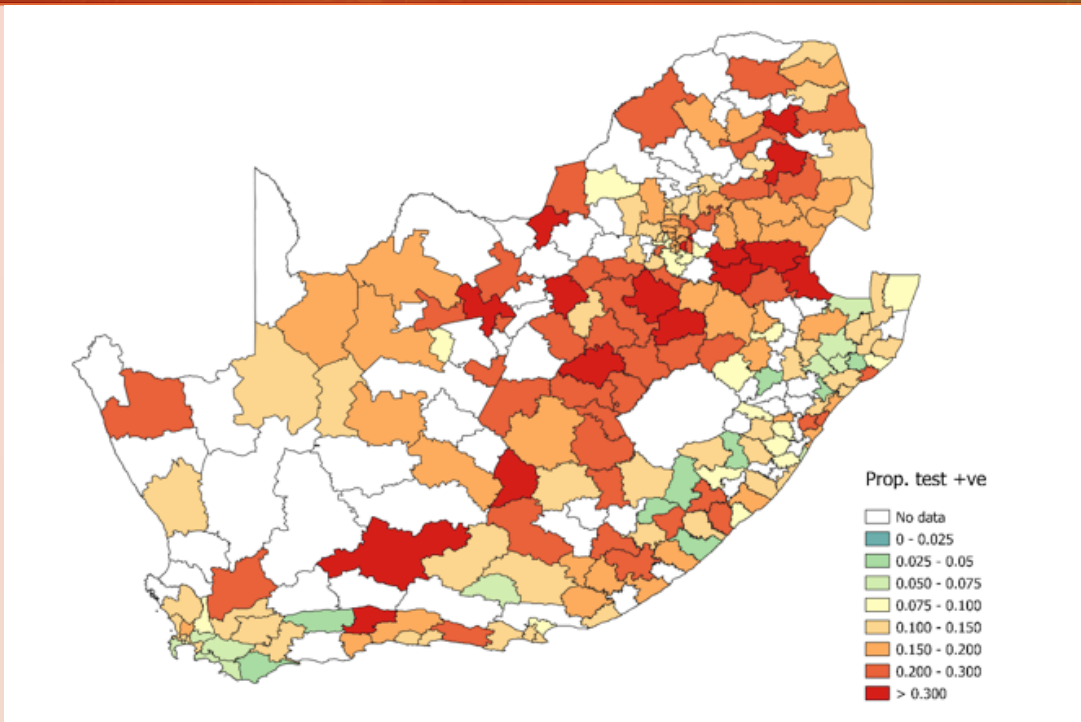


Figure 10. Proportion testing positive by health sub-district based on public sector data for the week of 16-22 August 2020, South Africa. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

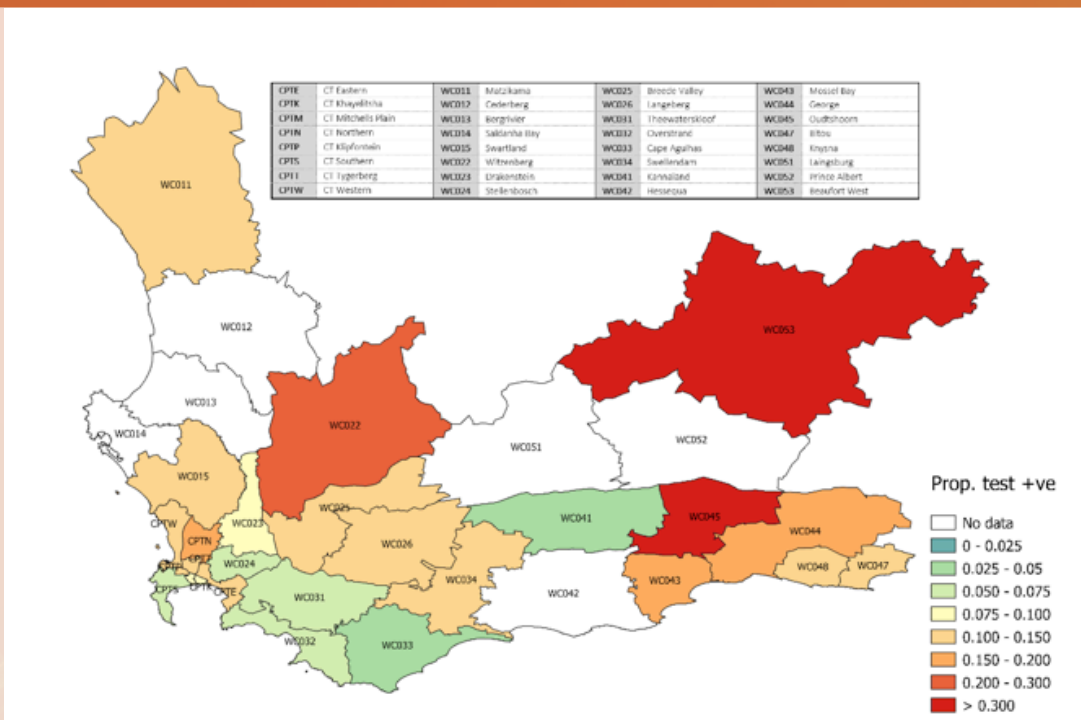


Figure 11. Health sub-districts in the Western Cape province with a high proportion testing positive based on public sector data for the week of 16-22 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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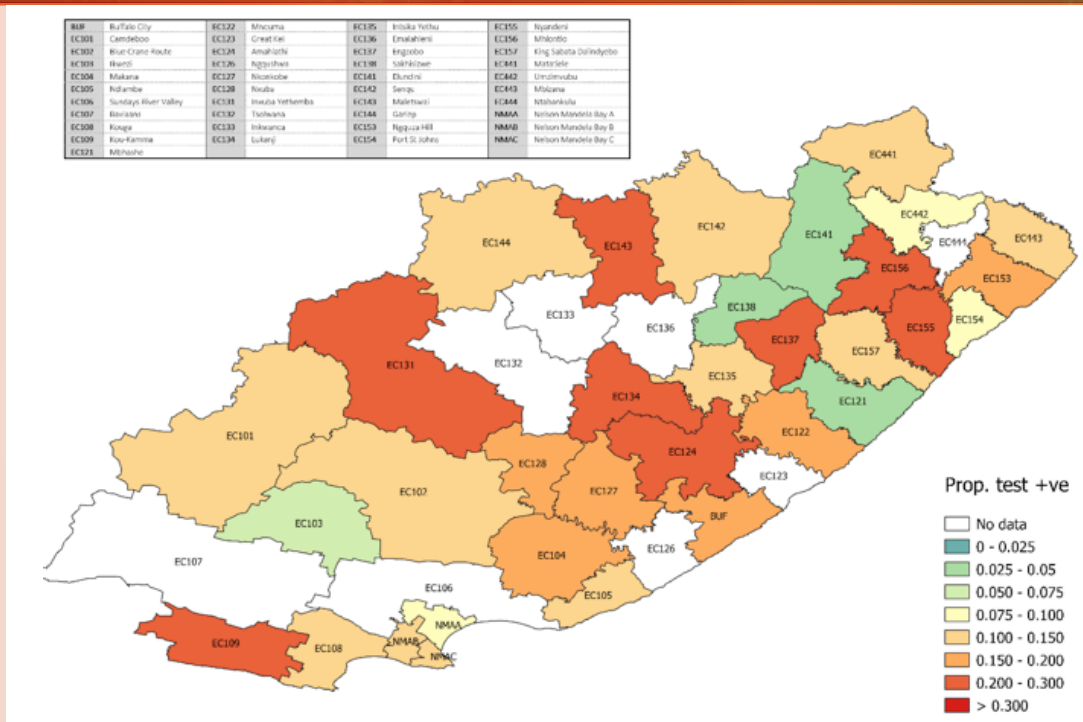


Figure 12. Health sub-districts in the Eastern Cape province with a high proportion testing positive based on public sector data for the week of 16-22 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

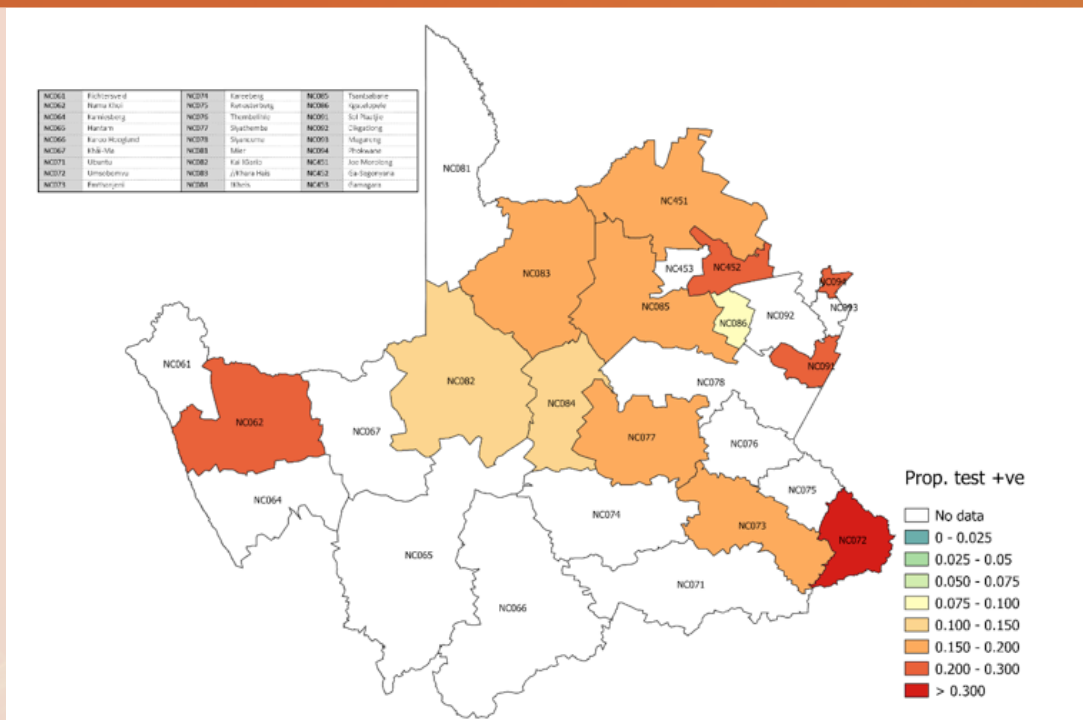


Figure 13. Health sub-districts in Northern Cape Province with a high proportion testing positive based on public sector data for the week of 16-22 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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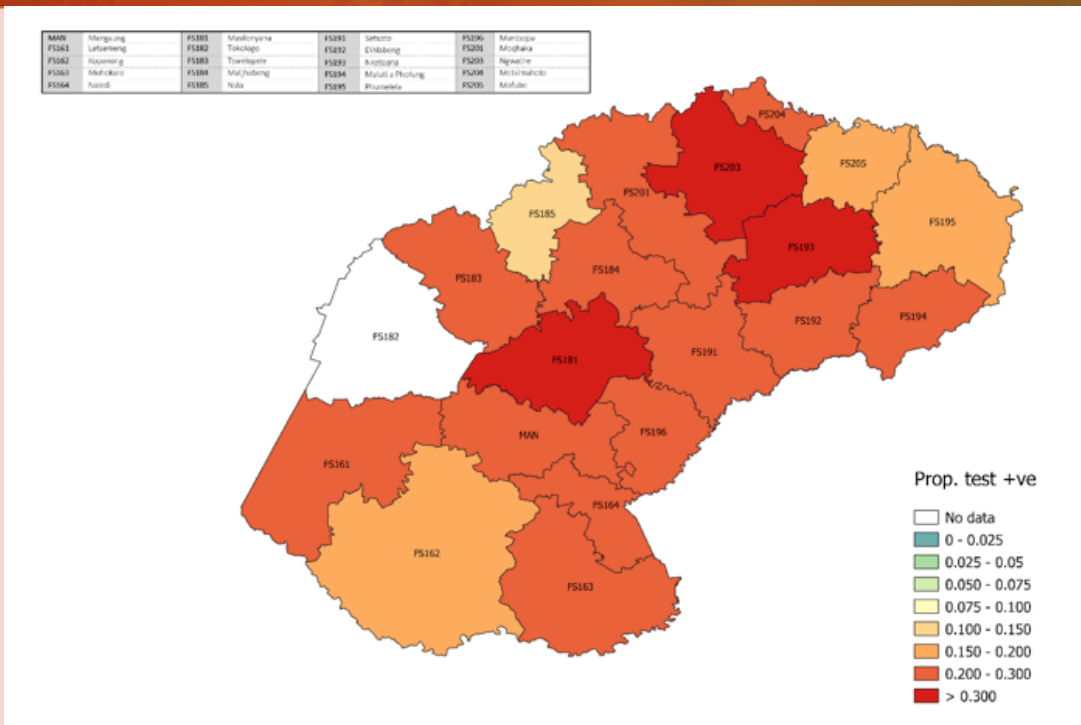


Figure 14. Health sub-districts in Free State Province with a high proportion testing positive based on public sector data for the week of 16-22 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

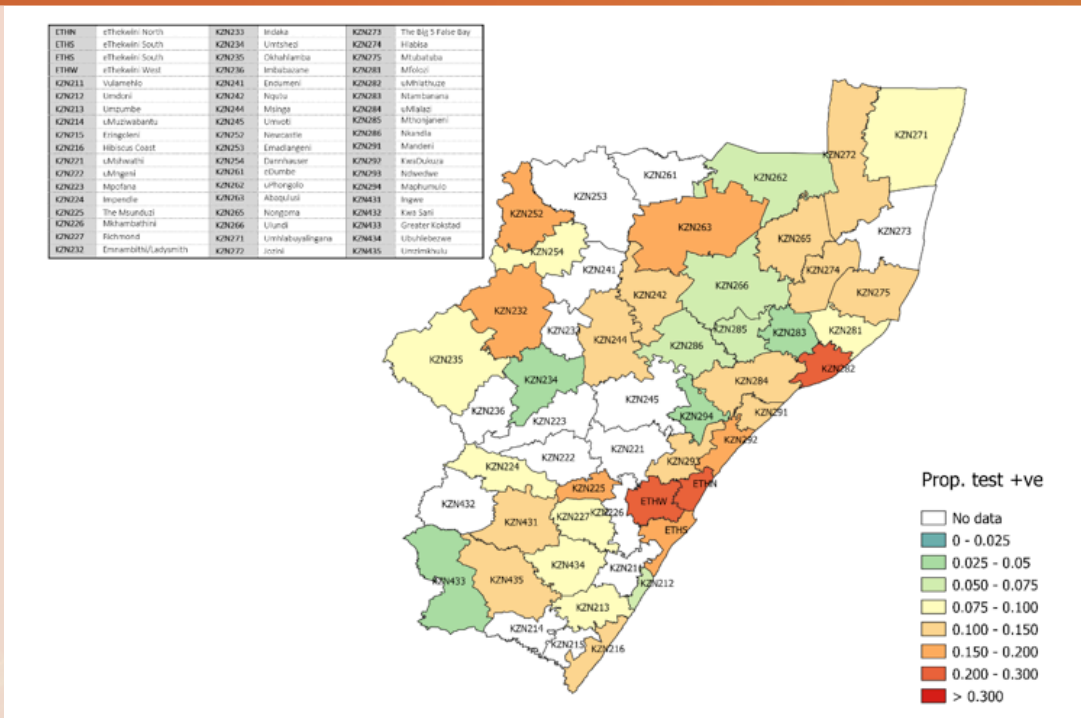


Figure 15. Health sub-districts in KwaZulu-Natal Province with a high proportion testing positive based on public sector data for the week of 16-22 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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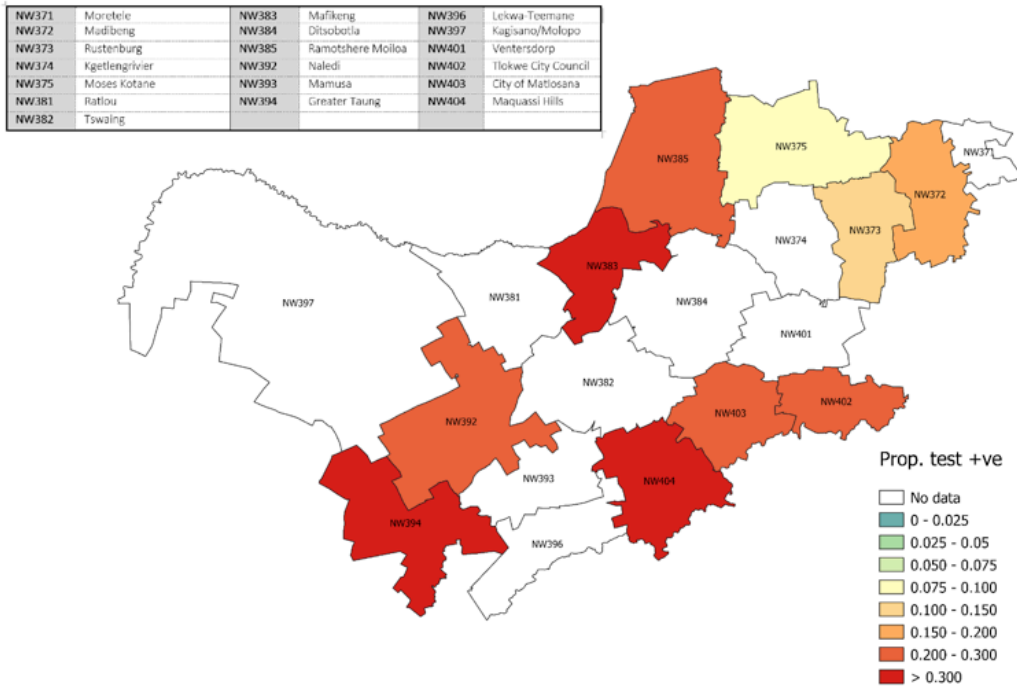


Figure 16. Health sub-districts in North West Province with a high proportion testing positive based on public sector data for the week of 16-22 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

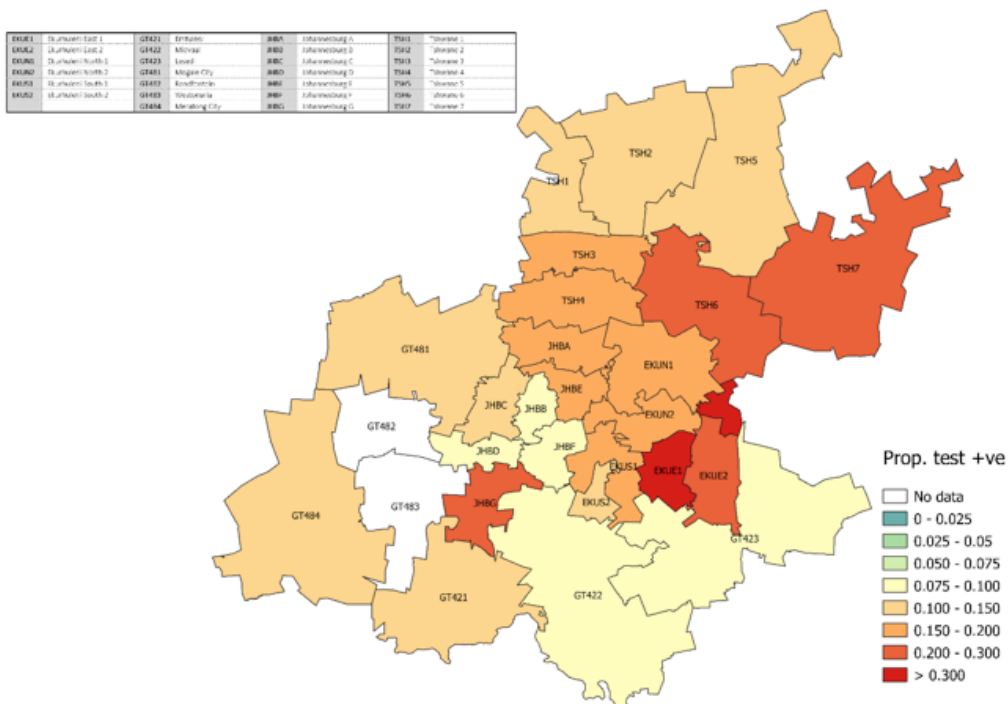


Figure 17. Health sub-districts in Gauteng Province with a high proportion testing positive based on public sector data for the week of 16-22 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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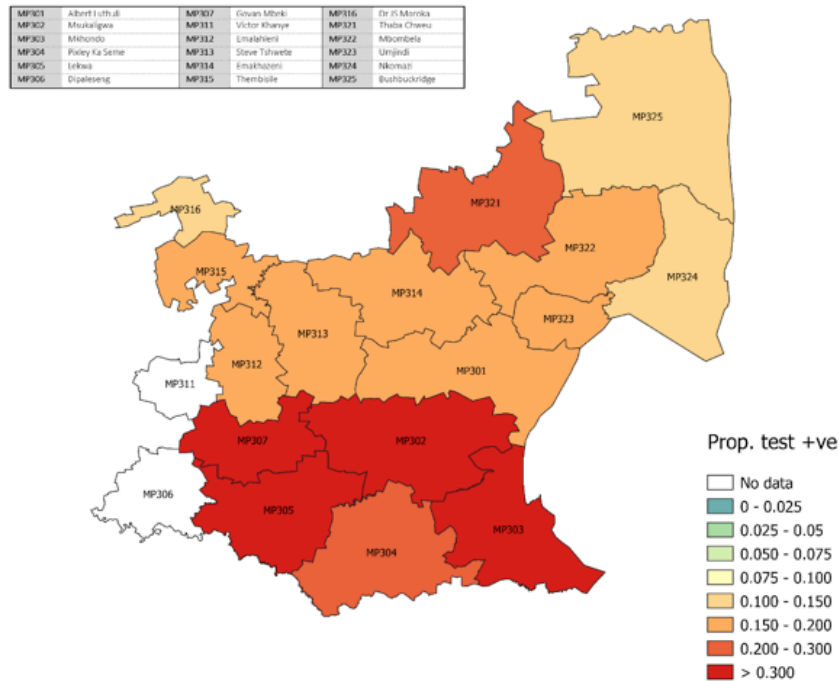


Figure 18. Health sub-districts in Mpumalanga Province with a high proportion testing positive based on public sector data for the week of 16-22 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

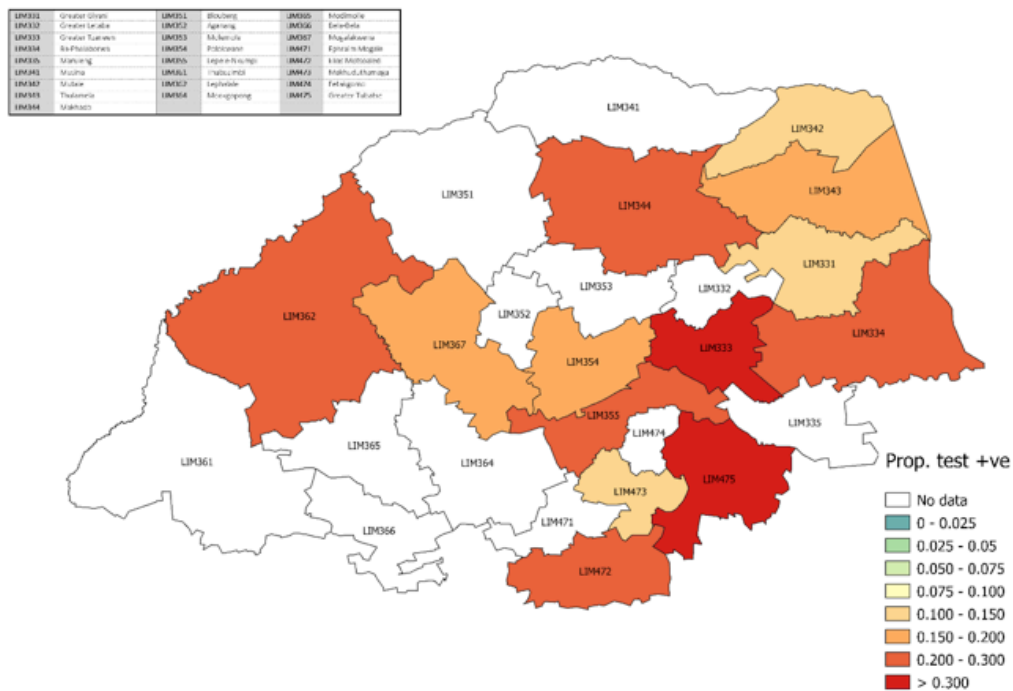


Figure 19. Health sub-districts in Limpopo Province with a high proportion testing positive based on public sector data for the week of 16-22 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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In week 34, 25.8% of tests in the public sector were performed for hospitalised patients (Figure 20). The proportion of inpatient tests was highest in the North West (40.6%) and Western Cape (36.3%) provinces, and had increased in the past week in Gauteng, KwaZulu-Natal and North West provinces. The percentage testing positive in week 34 was lower among inpatients (14.2%)

compared to outpatients (18.7%), with the percentage in both groups continuing to decrease in the past week (Figure 21). In the public sector in week 34 the mean laboratory turnaround time was similar for inpatients (2.6 days) and outpatients (2.8 days), with a reduction in turnaround time observed for both inpatient and outpatient tests in the past week (Figure 22).

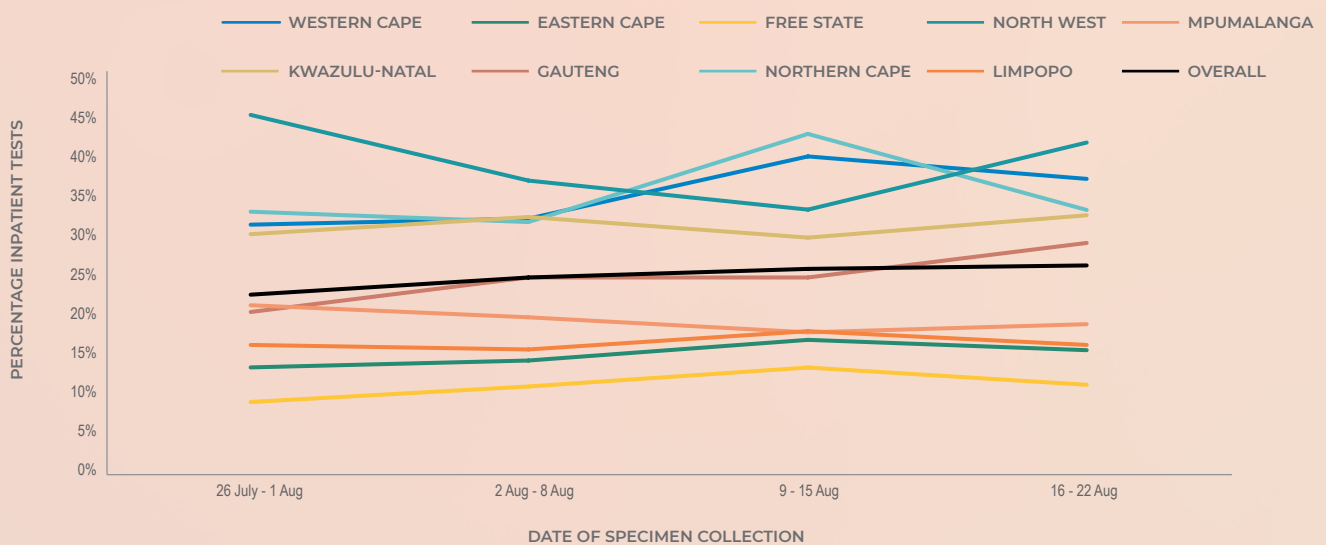


Figure 20. Percentage of inpatient tests performed in the public sector by province, 26 July-22 August 2020

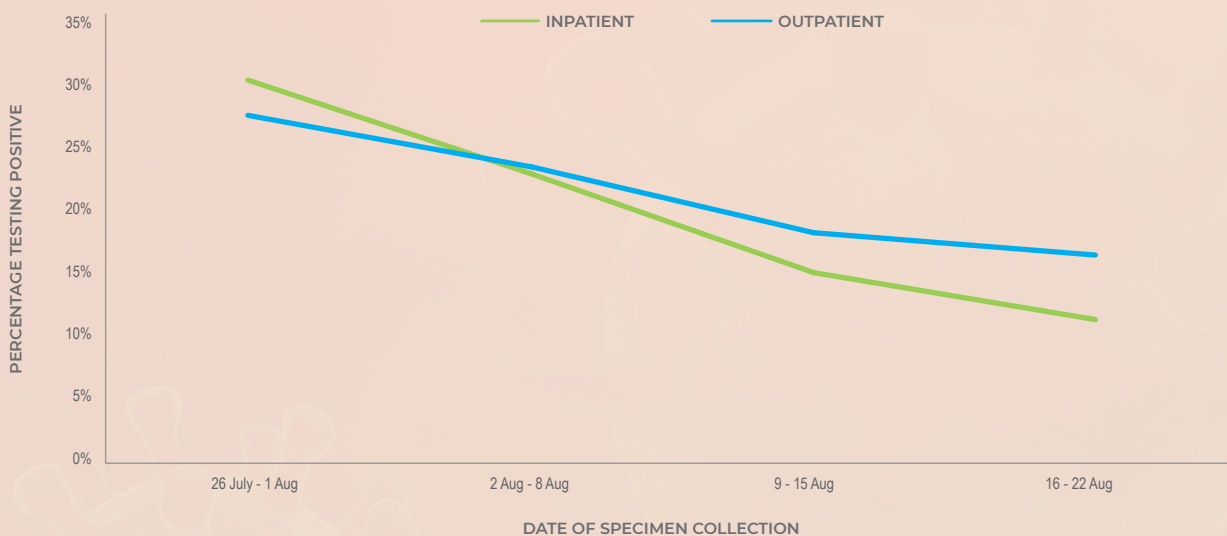


Figure 21. Percentage testing positive by patient admission status in the public sector, 26 July-22 August 2020

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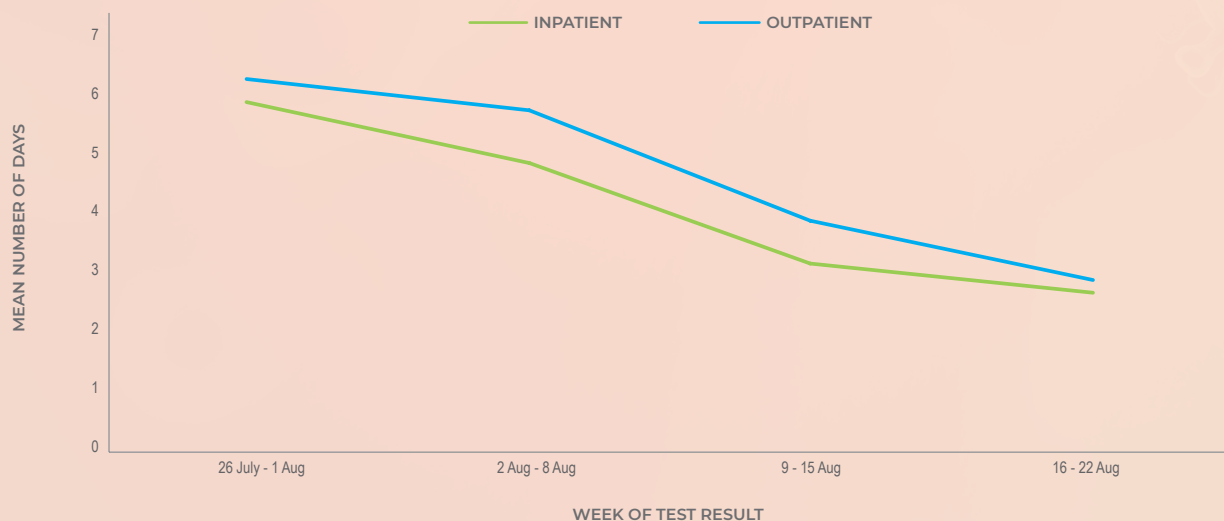


Figure 22. Mean number of days between date of specimen collection and date of test result, by patient admission status and date of test result in the public sector, South Africa, 26 July-22 August 2020

Testing by age and sex

The mean age of individuals tested in week 34 was 39.9 years. The mean age of individuals with a positive test in week 34 (42.2 years) was similar to week 33 (42.5 years), and was the same in males and females ($P=0.252$) (Table 7). The sex ratio (the number of males per 100

females) of individuals with a positive test decreased compared to previous weeks and was 65.9 in week 34. For both sexes, the proportion testing positive in week 34 was similar to or lower than the previous two weeks across age groups, except for females aged ≥ 80 years in which the percentage testing positive increased slightly from 22.6% to 24.7% (Figure 23).

Table 7. Mean age and sex ratio of individuals tested, South Africa, 26 July-22 August 2020

Week number	Week beginning	Mean age of tested (years)		Mean age of positive tests (years)		Sex ratios (males / 100 females)	
		Males	Females	Males	Females	Tested	Cases
31	26 July	39.6	40.1	42.3	42.3	77.5	70.9
32	2 August	39.7	40.0	42.6	42.2	78.4	69.6
33	9 August	39.9	40.3	42.6	42.5	77.1	70.0
34	16 August	39.6	40.3	42.0	42.4	76.5	65.9

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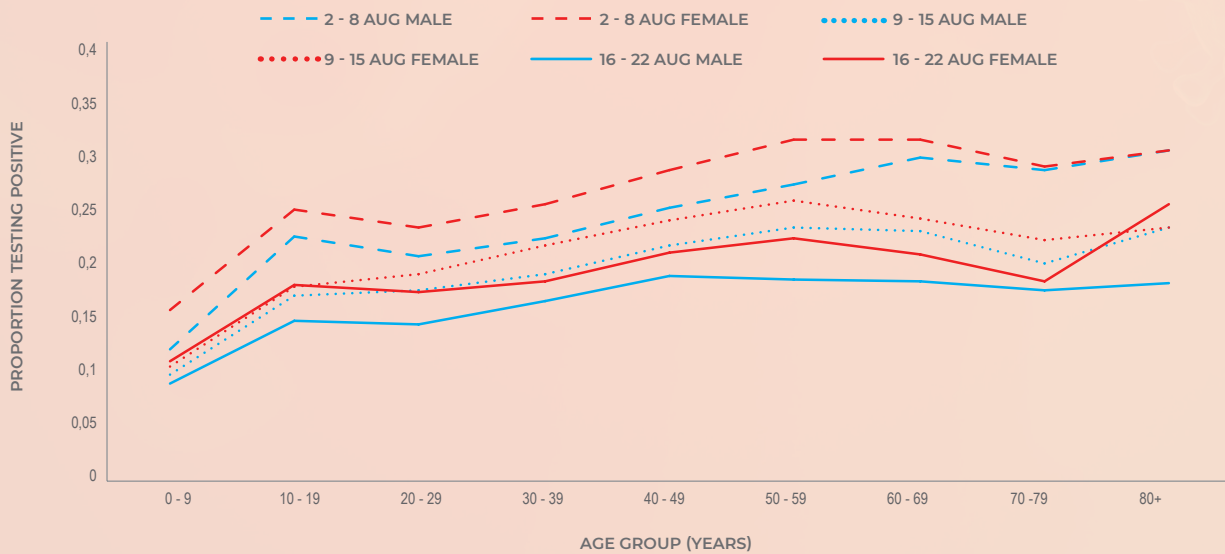


Figure 23. Weekly proportion testing positive by age group and sex, South Africa, 2 August-22 August 2020

From week 31 to week 34, the percentage testing positive decreased 11.3% in males (from 27.5% to 16.2%) and 11.3% in females (from 30.1% to 18.8%)

(Table 8). In week 34 the percentage testing positive was higher in females compared to males across all age groups ($P \leq 0.001$).

Table 8. Percentage testing positive by sex and week, South Africa, 26 July-22 August 2020

Age (years)	26 July-1 Aug		2-8 August		9-15 August		16-22 August	
	Male	Female	Male	Female	Male	Female	Male	Female
0-19	21.1%	22.9%	17.4%	21.0%	13.5%	14.9%	12.1%	15.2%
20-39	24.9%	28.1%	21.1%	23.9%	18.1%	20.1%	15.4%	17.5%
40-59	30.2%	32.6%	25.3%	29.0%	21.8%	24.1%	18.3%	21.0%
60-69	34.1%	35.6%	28.9%	30.4%	22.4%	23.6%	17.9%	20.4%
70+	33.8%	35.6%	28.2%	28.6%	20.4%	21.9%	17.3%	20.6%
Total	27.5%	30.1%	23.1%	26.1%	19.2%	21.2%	16.2%	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.
- 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 residence.

CONCLUSIONS

There continued to be week on week reductions in the weekly testing volume since the peak in week 28. Gauteng performed the largest number of tests in week 34 accounting for 30.0% of tests, followed by KwaZulu-Natal (20.6%) and Western Cape (14.5%). However, Free State (340 per 100,000 persons) and Northern Cape (324 per 100,000 persons) provinces had the highest testing rates. All nine provinces have shown reduced testing rates over the recent weeks.

The percentage testing positive increased to a peak of 31.4% in week 29 and has subsequently decreased week on week to 17.6% in week 34. Free state (27.5%), Northern Cape (25.8%), Mpumalanga (22.0%) and North West (20.7%) provinces continued to have the highest percentage testing positive in week 34. Compared to the previous week, the percentage testing positive decreased in seven provinces (Western Cape, Eastern Cape, Free State, KwaZulu-Natal, North West, Gauteng and Mpumalanga), and did not change in the Northern Cape and Limpopo provinces. Laboratory turnaround times continued to improve in the public sector, and in week 34 were 1.7 days in the private sector and 2.5 days in the public sector.