

# COVID-19 TESTING SUMMARY



NATIONAL INSTITUTE FOR  
COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 42 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 17 October 2020 (Week 42 of 2020).

## HIGHLIGHTS

- In the period 1 March 2020 through 17 October 2020, 3,923,112 laboratory tests for SARS-CoV-2 have been conducted nationally
- Weekly testing volumes have decreased since a peak in week 28, however the number of tests performed in week 42 were similar to the previous week and were higher than has been observed since week 34
- Free State (340 per 100,000 persons) and Northern Cape (318 per 100,000 persons) provinces had the highest testing rates in week 42
- Percentage testing positive has been decreasing weekly since the peak of 31.3% in week 29. In week 42 the percentage testing positive continued to decrease to 9.9%.
- Percentages testing positive were  $\geq 20\%$  in Northern Cape and Free State, between 10-19% in Eastern Cape, North West, Mpumalanga and Limpopo, and  $< 10\%$  in Gauteng, KwaZulu-Natal and Western Cape
- Compared to the previous week, the percentage testing positive increased in KwaZulu-Natal, decreased in Western Cape and North West, and did not change in Eastern Cape, Northern Cape, Free State, Gauteng, Mpumalanga and Limpopo provinces
- Overall laboratory turnaround times in week 42 were 2.3 days; 1.8 days in the public sector and 2.7 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 2020 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.

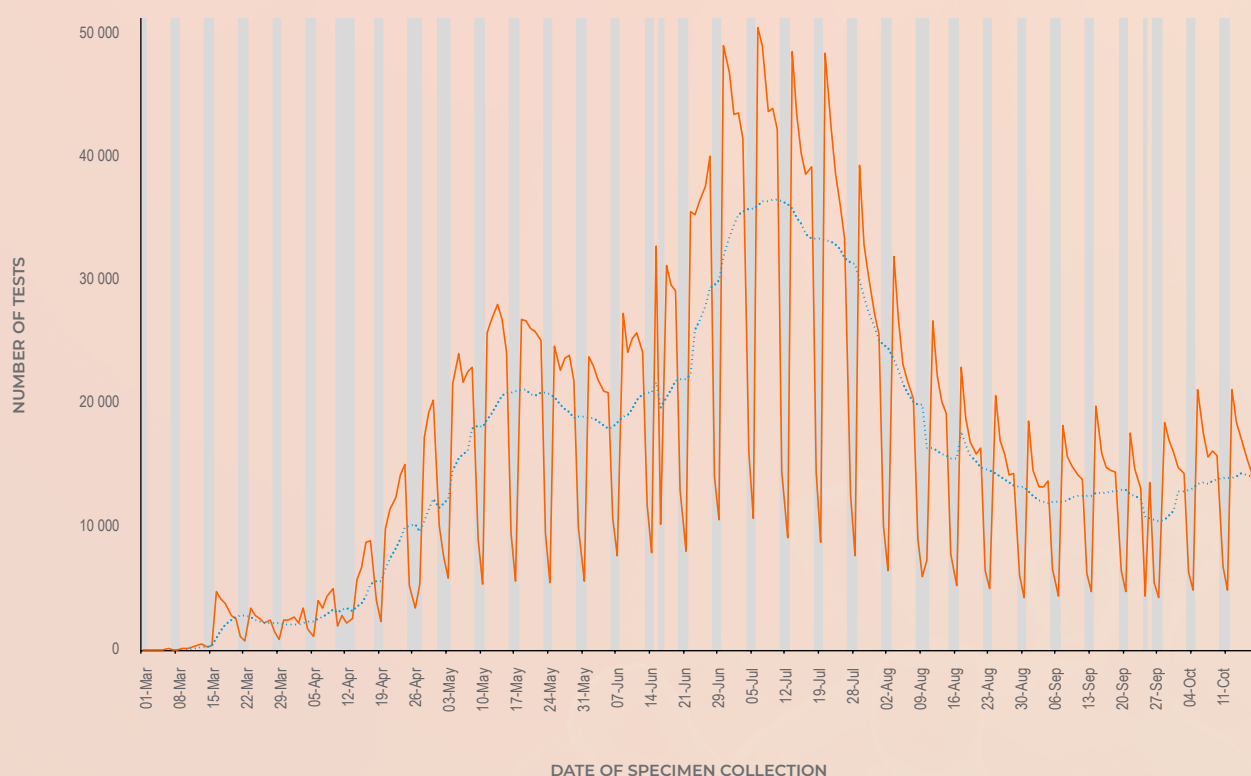
The report includes tests conducted between 1 March 2020 (week 10), the week when the first case of COVID-19 was confirmed, and 17 October 2020 (week 42).

## Testing volumes and proportion testing positive

From 1 March through 17 October 2020, 3,923,112 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=272,767), but have subsequently decreased. In week 42, 104,724 tests were performed, similar to week 41 and slightly higher than the number of tests performed in weeks 35-40. 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 – 17 October 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 42 was 17.3% (Table 1). The percentage testing positive increased week on week from week 18 to a peak of 31.3% in week 29. Since week 29, there has been a 21.4% decrease in the percentage testing positive to 9.9% in week 42. The percentage testing positive in week 42 was slightly lower than observed in the previous week ( $P=0.010$ ), and is the lowest percentage testing positive observed since week 23, beginning 31 May 2020 (Figure 2).

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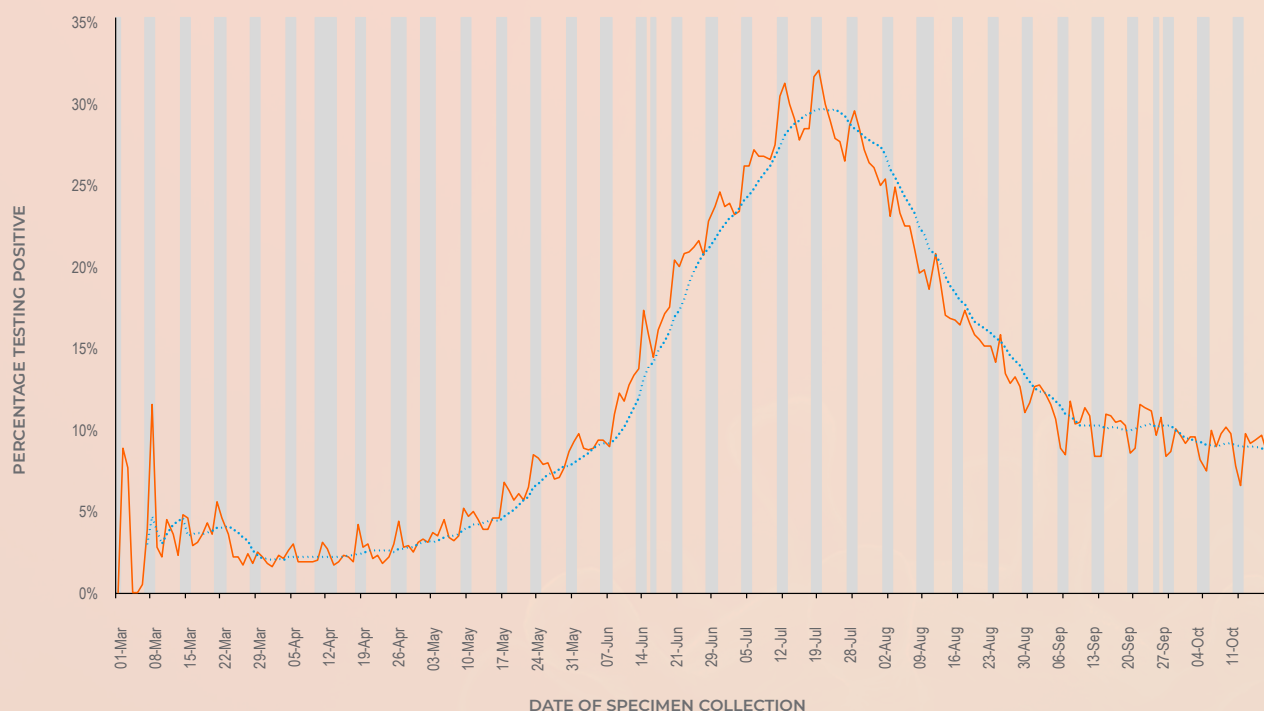
**Table 1.** Weekly number of tests conducted and positive tests, South Africa, 1 March – 17 October 2020

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)
10	01-Mar	410 (0.0)	9	2.2
11	08-Mar	2329 (0.1)	88	3.8
12	15-Mar	21321 (0.5)	825	3.9
13	22-Mar	17041 (0.4)	470	2.8
14	29-Mar	17384 (0.4)	399	2.3
15	05-Apr	24600 (0.6)	568	2.3
16	12-Apr	41871 (1.1)	1049	2.5
17	19-Apr	75900 (1.9)	1932	2.5
18	26-Apr	89505 (2.3)	2892	3.2
19	03-May	136899 (3.5)	5550	4.1
20	10-May	157049 (4.0)	7438	4.7
21	17-May	156431 (4.0)	10512	6.7
22	24-May	141866 (3.6)	11701	8.2
23	31-May	136165 (3.5)	13482	9.9
24	07-Jun	156820 (4.0)	20491	13.1
25	14-Jun	164953 (4.2)	29898	18.1
26	21-Jun	222110 (5.7)	50498	22.7
27	28-Jun	269041 (6.9)	69230	25.7
28	05-Jul	272767 (7.0)	79662	29.2
29	12-Jul	250376 (6.4)	78322	31.3
30	19-Jul	236331 (6.0)	72444	30.7
31	26-Jul	185662 (4.7)	53616	28.9
32	02-Aug	149924 (3.8)	36872	24.6
33	09-Aug	117211 (3.0)	23447	20.0
34	16-Aug	110199 (2.8)	19123	17.4
35	23-Aug	99995 (2.5)	14650	14.7
36	30-Aug	90446 (2.3)	11432	12.6
37	06-Sep	94015 (2.4)	10810	11.5
38	13-Sep	97532 (2.5)	10916	11.2
39	20-Sep	79184 (2.0)	9190	11.6
40	27-Sep	98090 (2.5)	10013	10.2
41	04-Oct	104961 (2.7)	10710	10.2
42	11-Oct	104724 (2.7)	10331	9.9
<b>Total</b>		<b>3923112 (100.0)</b>	<b>678570</b>	<b>17.3</b>



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**Figure 2.** Percentage of laboratory tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March – 17 October 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 17 October, 1,795,310 laboratory tests were conducted in public sector laboratories, with 15.9% testing positive. Over this same period, private sector laboratories conducted 2,127,802 tests, with 18.5% testing positive (Table 2). Overall the public sector has conducted 45.8% of tests and accounted for 42.0% of positive tests. The peak percentage testing positive was observed in week 30 in the public sector (29.5%), and in week 29 in the private sector (32.8%). From week 41 to week 42, the percentage testing positive decreased by 0.7% in the public sector and was unchanged in the private sector. In week 42 the percentage testing positive

continued to be higher in the public sector (10.5%) compared to the private sector (9.4%) ( $P < 0.001$ ), as has been observed since week 34.

The mean turnaround time for tests conducted in week 42 was 2.3 days and was similar to the previous week in both the public sector (1.8 days) and private sector (2.7 days) (Figure 3). Turnaround times for public sector tests were  $>2$  days in Northern Cape (4.4 days) and Free State (2.2 days) provinces (Figure 4). Turnaround times in the past week increased by 1.1 days in Northern Cape, and to a lesser extent in Free State, KwaZulu-Natal, North West and Mpumalanga. Twenty-three of the 28 (82.1%) NHLS laboratories performing testing for SARS-CoV-2 had turnaround times  $\leq 2$  days (Figure 5).

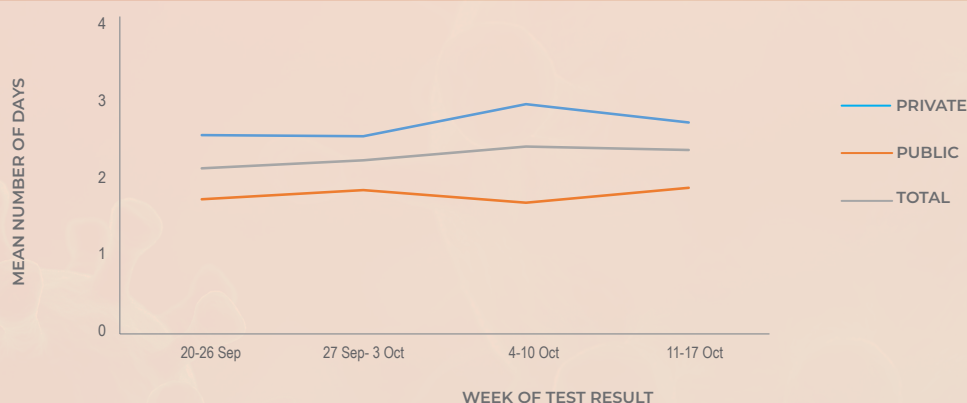
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**Table 2.** Weekly number of tests conducted and positive tests, by healthcare sector, South Africa, 1 March – 17 October 2020

Week number	Week beginning	Public sector		Private sector		Public sector percentage of		Ratio of PTP <sup>a</sup>
		Tests	Cases n (%)	Tests	Positive tests n (%)	Tests (%)	Positive tests (%)	
10	01-Mar	251	5 (2.0)	159	4 (2.5)	61.2	55.6	0.792
11	08-Mar	351	12 (3.4)	1978	76 (3.8)	15.1	13.6	0.890
12	15-Mar	1344	51 (3.8)	19977	774 (3.9)	6.3	6.2	0.979
13	22-Mar	3357	124 (3.7)	13684	346 (2.5)	19.7	26.4	1.461
14	29-Mar	5613	158 (2.8)	11771	241 (2.0)	32.3	39.6	1.375
15	05-Apr	11341	320 (2.8)	13259	248 (1.9)	46.1	56.3	1.509
16	12-Apr	23767	608 (2.6)	18104	441 (2.4)	56.8	58.0	1.050
17	19-Apr	54160	1476 (2.7)	21740	456 (2.1)	71.4	76.4	1.299
18	26-Apr	66210	2282 (3.4)	23295	610 (2.6)	74.0	78.9	1.316
19	03-May	92310	4241 (4.6)	44589	1309 (2.9)	67.4	76.4	1.565
20	10-May	104964	5096 (4.9)	52085	2342 (4.5)	66.8	68.5	1.080
21	17-May	95461	6606 (6.9)	60970	3906 (6.4)	61.0	62.8	1.080
22	24-May	74254	5943 (8.0)	67612	5758 (8.5)	52.3	50.8	0.940
23	31-May	60237	6084 (10.1)	75928	7398 (9.7)	44.2	45.1	1.037
24	07-Jun	59981	7331 (12.2)	96839	13160 (13.6)	38.2	35.8	0.899
25	14-Jun	55999	11050 (19.7)	108954	18848 (17.3)	33.9	37.0	1.141
26	21-Jun	82636	18831 (22.8)	139474	31667 (22.7)	37.2	37.3	1.004
27	28-Jun	97319	25103 (25.8)	171722	44127 (25.7)	36.2	36.3	1.004
28	05-Jul	108018	30244 (28.0)	164749	49418 (30.0)	39.6	38.0	0.933
29	12-Jul	101349	29384 (29.0)	149027	48938 (32.8)	40.5	37.5	0.883
30	19-Jul	96258	28399 (29.5)	140073	44045 (31.4)	40.7	39.2	0.938
31	26-Jul	73960	21315 (28.8)	111702	32301 (28.9)	39.8	39.8	0.997
32	02-Aug	64112	15737 (24.5)	85812	21135 (24.6)	42.8	42.7	0.997
33	09-Aug	53673	10395 (19.4)	63538	13052 (20.5)	45.8	44.3	0.943
34	16-Aug	50917	8929 (17.5)	59282	10194 (17.2)	46.2	46.7	1.020
35	23-Aug	45502	7226 (15.9)	54493	7424 (13.6)	45.5	49.3	1.166
36	30-Aug	41069	5609 (13.7)	49377	5823 (11.8)	45.4	49.1	1.158
37	06-Sep	46400	5974 (12.9)	47615	4836 (10.2)	49.4	55.3	1.268
38	13-Sep	49122	6102 (12.4)	48410	4814 (9.9)	50.4	55.9	1.249
39	20-Sep	40950	5134 (12.5)	38234	4056 (10.6)	51.7	55.9	1.182
40	27-Sep	44221	5188 (11.7)	53869	4825 (9.0)	45.1	51.8	1.310
41	04-Oct	46273	5189 (11.2)	58688	5521 (9.4)	44.1	48.5	1.192
42	11-Oct	43931	4625 (10.5)	60793	5706 (9.4)	41.9	44.8	1.122
<b>Total</b>		<b>1795310</b>	<b>284771 (15.9)</b>	<b>2127802</b>	<b>393799 (18.5)</b>	<b>45.8</b>	<b>42.0</b>	<b>0.857</b>

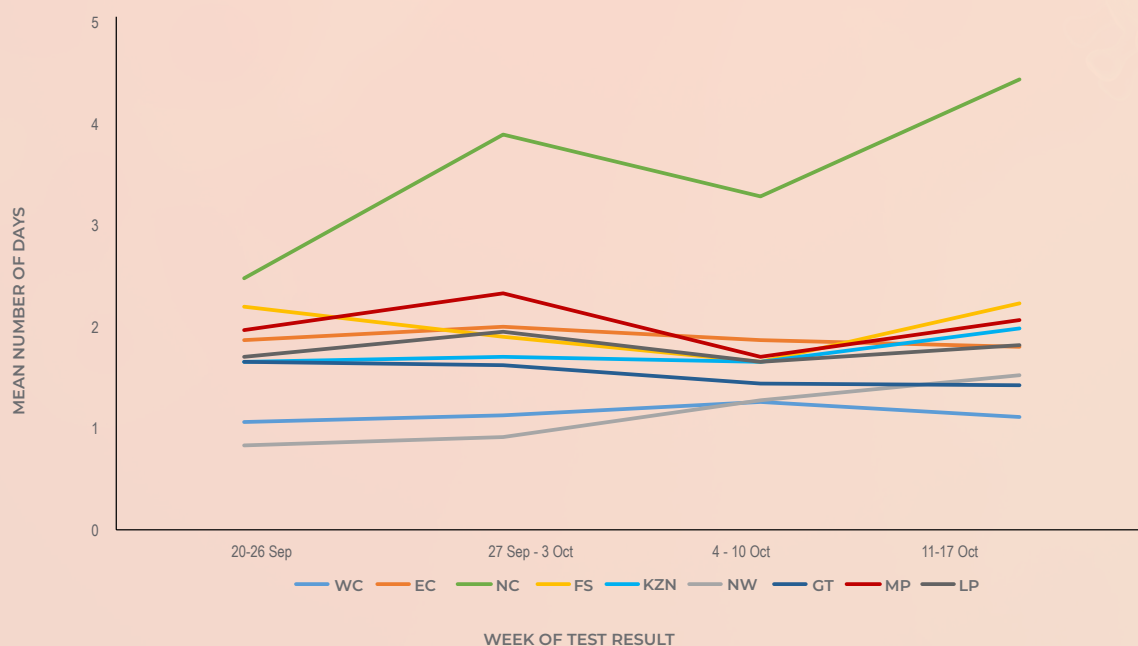
aRatio of percentage testing positive (PTP) in the public sector to the private sector calculated as (no. of cases/total tests in public sector)/ (no. of cases/total tests in private sector)



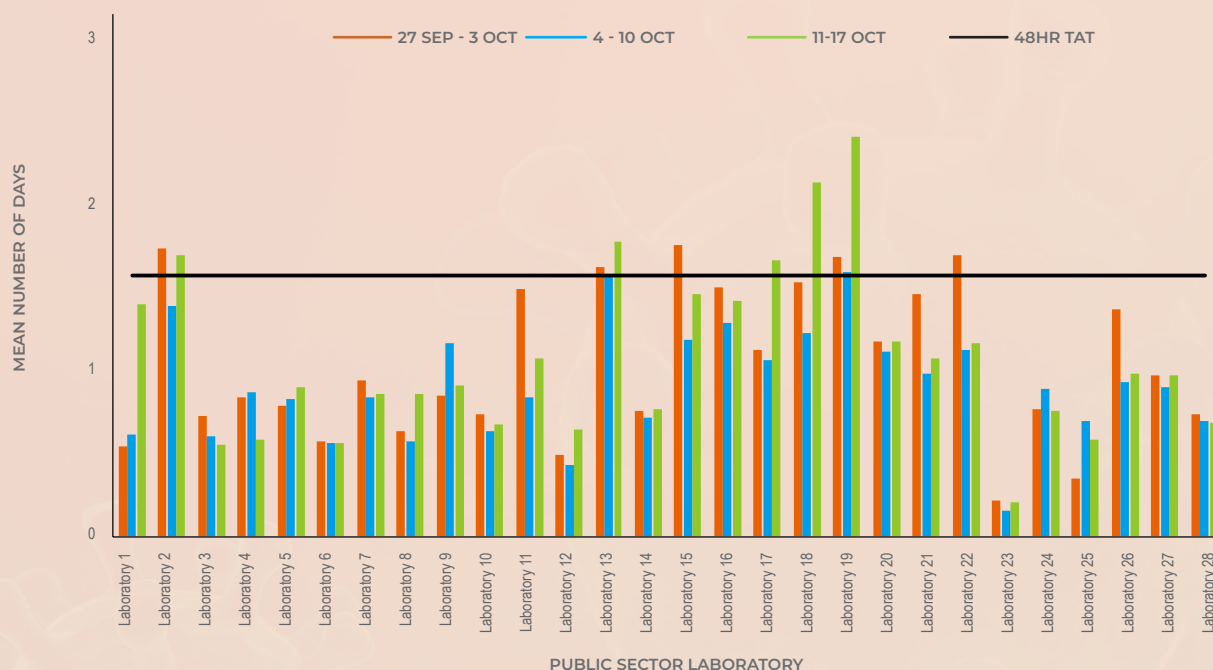
**Figure 3.** Mean number of days between date of specimen collection and date of test result, by week of test result, South Africa, 20 September – 17 October 2020

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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, 20 September – 17 October 2020. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal; GT, Gauteng; NC, Northern Cape; NW, North West; MP, Mpumalanga; LP, Limpopo



**Figure 5.** Mean number of days between date of specimen collection and date of test result, by public sector laboratory, 27 September – 17 October 2020. The horizontal black line indicates 48-hour turnaround time (TAT).



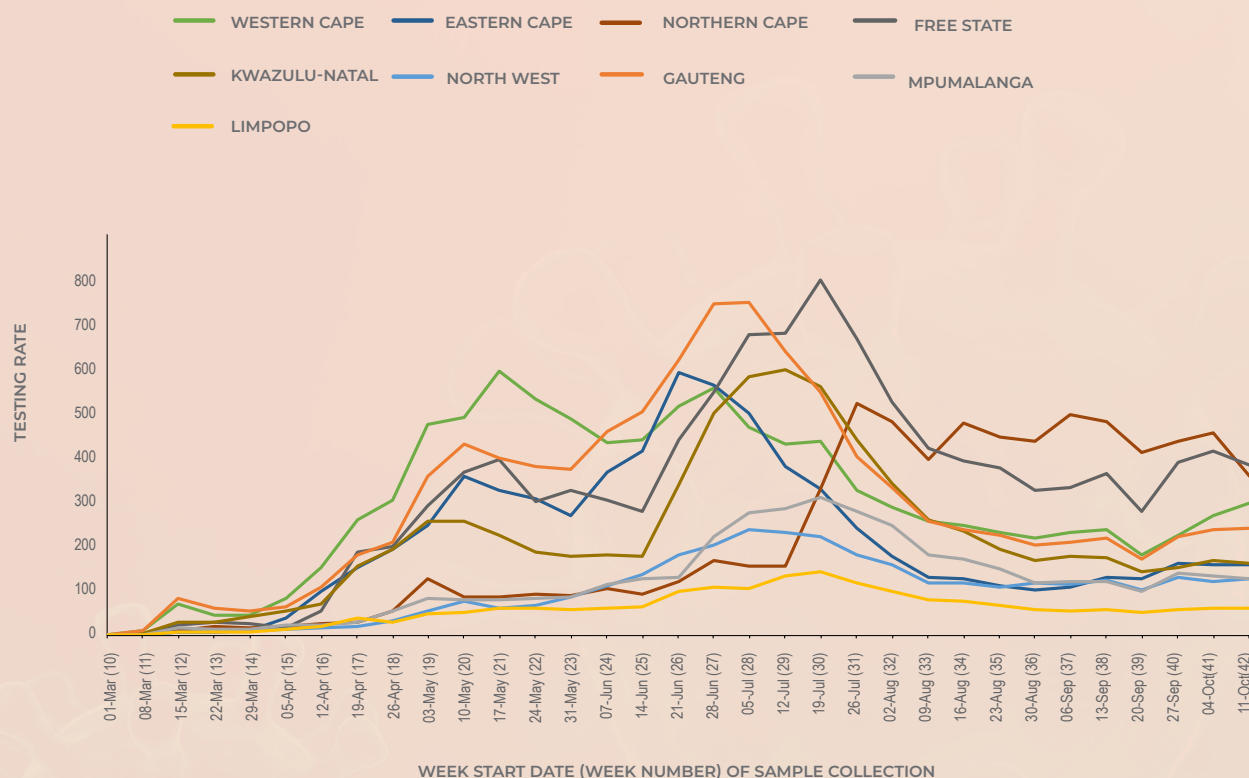
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## Testing by province

As observed in previous weeks Gauteng (31.6%) performed the largest number of tests in week 42, followed by Western Cape (17.7%) and KwaZulu-Natal (15.6%) provinces (Table 3). All other provinces conducted <10,000 tests in week 42. As has been observed since week 31, Free State (340 per 100,000 persons) and Northern Cape (318 per 100,000 persons) provinces had the highest testing rates in week 42 (Figure 6). Testing rates have decreased in all provinces since peak testing rates were observed between week 21 (Western Cape) and week 31 (Northern Cape) in the respective provinces. Compared to the previous two weeks, testing rates increased in Western Cape and Gauteng provinces in week 42.

Percentages testing positive were  $\geq 20\%$  in Northern Cape (24.4%) and Free State (22.6%), between 10-19% in Eastern Cape, North West, Mpumalanga and Limpopo, and <10% in Gauteng, KwaZulu-Natal and Western Cape in week 42 (Figure 7). Compared to the previous week, the percentage testing positive increased in KwaZulu-Natal (4.1% in week 41 to 5.5% in week 42,  $P < 0.001$ ). The percentage testing positive in week 42 compared to week 41 decreased in Western Cape ( $P < 0.001$ ) and North West ( $P = 0.040$ ) provinces, and did not change in Eastern Cape ( $P = 0.211$ ), Northern Cape ( $P = 0.439$ ), Free State ( $P = 0.835$ ), Gauteng ( $P = 0.149$ ), Mpumalanga ( $P = 0.726$ ) and Limpopo ( $P = 0.185$ ) provinces. The percentage testing positive was higher than the national average, not weighted for population size, in the Eastern Cape, 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 – 17 October 2020



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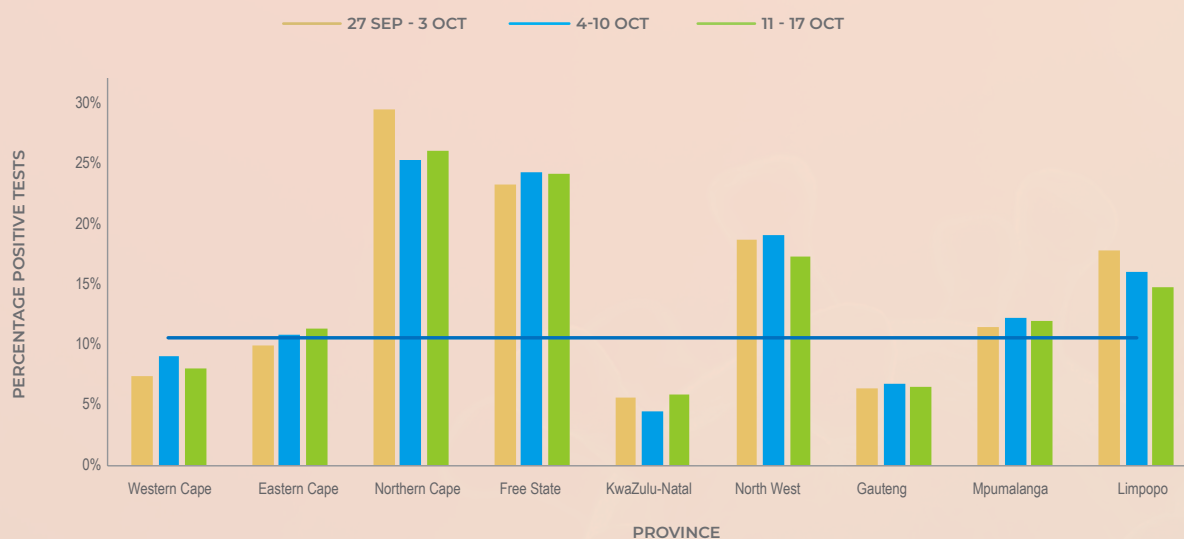
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**Table 3.** Weekly number of tests performed and positive tests, by province, South Africa, 27 September – 17 October 2020

Province	Population <sup>a</sup>	27 Sep-3 Oct		4-10 Oct		11-17 Oct		Tests per 100,000 persons	Change in percentage positive <sup>b</sup>
		No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)		
Western Cape	7005741	13898	962 (6.9)	16621	1410 (8.5)	18501	1380 (7.5)	264	-1.0%
Eastern Cape	6734001	9628	895 (9.3)	9421	949 (10.1)	9437	1003 (10.6)	140	0.6%
Northern Cape	1292786	4996	1379 (27.6)	5216	1236 (23.7)	4109	1002 (24.4)	318	0.7%
Free State	2928903	10143	2204 (21.7)	10778	2447 (22.7)	9968	2251 (22.6)	340	-0.1%
KwaZulu-Natal	11531628	15542	820 (5.3)	17035	705 (4.1)	16384	898 (5.5)	142	1.3%
North West	4108816	4718	827 (17.5)	4354	776 (17.8)	4668	756 (16.2)	114	-1.6%
Gauteng	15488137	30351	1816 (6.0)	32666	2074 (6.3)	33090	2011 (6.1)	214	-0.3%
Mpumalanga	4679786	5718	610 (10.7)	5539	632 (11.4)	5314	595 (11.2)	114	-0.2%
Limpopo	5852553	2938	491 (16.7)	3150	473 (15.0)	3079	426 (13.8)	53	-1.2%
Unknown		158	9 (5.7)	181	8 (4.4)	174	9 (5.2)		0.8%
<b>Total</b>	<b>59622350</b>	<b>98090</b>	<b>10013 (10.2)</b>	<b>104961</b>	<b>10710 (10.2)</b>	<b>104724</b>	<b>10331 (9.9)</b>	<b>176</b>	<b>-0.3%</b>

<sup>a</sup> 2020 Mid-year population Statistics SA

<sup>b</sup> Current week compared to previous week



**Figure 7.** Weekly percentage testing positive, by province, South Africa, 27 September – 17 October 2020. The horizontal blue line shows the national mean for week 42, beginning 11 October 2020.

## Testing in the public sector

In the public sector, the percentage testing positive decreased from 11.2% in week 41 to 10.5% in week 42 ( $P=0.001$ ) (Table 4). The percentage testing positive in week 42 was highest in the Free State (23.7%),

Northern Cape (23.1%) and North West (22.7%) provinces. The percentage testing positive in the public sector remains higher than the national average, not weighted for population size, in the Eastern Cape, 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, 27 September - 17 October 2020

Province	27 Sep-3 Oct		4-10 Oct		11-17 Oct	
	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	5793	388 (6.7)	6191	481 (7.8)	7244	504 (7.0)
Eastern Cape	6909	736 (10.7)	6599	696 (10.5)	6384	715 (11.2)
Northern Cape	2858	866 (30.3)	3123	703 (22.5)	2143	494 (23.1)
Free State	5246	1200 (22.9)	5781	1403 (24.3)	4860	1151 (23.7)
KwaZulu-Natal	8155	446 (5.5)	9425	401 (4.3)	8168	400 (4.9)
North West	1837	438 (23.8)	1742	410 (23.5)	1568	356 (22.7)
Gauteng	10573	636 (6.0)	10558	601 (5.7)	10887	581 (5.3)
Mpumalanga	1698	222 (13.1)	1662	245 (14.7)	1459	214 (14.7)
Limpopo	1152	256 (22.2)	1192	249 (20.9)	1214	210 (17.3)
Unknown	0	0 (0.0)	0	0 (0.0)	4	0 (0.0)
<b>Total</b>	<b>44221</b>	<b>5188 (11.7)</b>	<b>46273</b>	<b>5189 (11.2)</b>	<b>43931</b>	<b>4625 (10.5)</b>



**Figure 8.** Weekly percentage testing positive in the public sector, by province, South Africa, 27 September – 17 October 2020. The horizontal blue line shows the national mean for week 42, beginning 11 October 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 11-17 October, with the highest proportion testing positive nationally. This week's list is dominated by facilities in the Free State (9), Northern Cape (8) and North West (5).

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**Table 5.** Public healthcare facilities with a high proportion testing positive, 11-17 October 2020

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Northern Cape	26	0.538 (0.347;0.730)
Facility 2	Free State	30	0.533 (0.355;0.712)
Facility 3	Northern Cape	36	0.444 (0.282;0.607)
Facility 4	North West	39	0.436 (0.280;0.592)
Facility 5	North West	28	0.429 (0.245;0.612)
Facility 6	North West	105	0.410 (0.315;0.504)
Facility 7	North West	57	0.404 (0.276;0.531)
Facility 8	Free State	117	0.393 (0.305;0.482)
Facility 9	North West	26	0.385 (0.198;0.572)
Facility 10	Free State	61	0.377 (0.255;0.499)
Facility 11	Free State	440	0.375 (0.330;0.420)
Facility 12	Free State	27	0.370 (0.188;0.553)
Facility 13	Free State	57	0.368 (0.243;0.494)
Facility 14	Northern Cape	29	0.345 (0.172;0.518)
Facility 15	Free State	33	0.333 (0.172;0.494)
Facility 16	Northern Cape	63	0.333 (0.217;0.450)
Facility 17	Eastern Cape	36	0.333 (0.179;0.487)
Facility 18	Northern Cape	27	0.333 (0.156;0.511)
Facility 19	Free State	166	0.325 (0.254;0.397)
Facility 20	Limpopo	28	0.321 (0.148;0.494)
Facility 21	Northern Cape	25	0.320 (0.137;0.503)
Facility 22	Northern Cape	224	0.313 (0.252;0.373)
Facility 23	Northern Cape	45	0.311 (0.176;0.446)
Facility 24	Eastern Cape	29	0.310 (0.142;0.479)
Facility 25	Free State	198	0.308 (0.244;0.372)

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 11-17 October 2020 are shown in Table 6. The list of districts continues to be dominated by those in the Free State (9), Northern

Cape (8) and North West (4). Two districts showed a proportion testing positive greater than 40%, four districts were greater than 30% and eight districts showed a proportion testing positive less than 25%. A significant increase over the week was observed in one district – Emthanjeni in the Northern Cape. A significant decrease over the week was observed in Sol Plaatje, also in the Northern Cape.



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**Table 6.** Health sub-districts with the highest proportion testing positive based on public sector data for the week of 11-17 October 2020

Health district or sub-district	Province	PTP (95% CI)	Previous week
Naledi	Free State	0.454 (0.316-0.593)	0.230 (0.134-0.326)
Mafikeng	North West	0.406 (0.345-0.467)	0.317 (0.264-0.369)
Ga-Segonyana	Northern Cape	0.394 (0.304-0.483)	0.297 (0.216-0.378)
Baviaans	Eastern Cape	0.391 (0.270-0.513)	0.292 (0.164-0.420)
Lephalale	Limpopo	0.361 (0.238-0.484)	0.333 (0.234-0.432)
Letsemeng	Free State	0.307 (0.231-0.383)	0.222 (0.168-0.276)
Emalahleni	Eastern Cape	0.293 (0.178-0.407)	...
Dikgatlong	Northern Cape	0.292 (0.157-0.426)	0.167 (0.067-0.268)
Setsoto	Free State	0.283 (0.201-0.366)	0.267 (0.195-0.339)
Tsantsabane	Northern Cape	0.282 (0.184-0.381)	0.279 (0.179-0.379)
Emthanjeni	Northern Cape	0.276 (0.189-0.364)	0.153 (0.124-0.183)
Mohokare	Free State	0.276 (0.143-0.408)	0.148 (0.066-0.230)
Naledi	North West	0.275 (0.205-0.346)	0.230 (0.134-0.326)
Masilonyana	Free State	0.273 (0.141-0.405)	...
Ramotshere Moiloa	North West	0.265 (0.166-0.364)	0.235 (0.153-0.316)
Nketoana	Free State	0.263 (0.160-0.365)	0.242 (0.157-0.327)
Ba-Phalaborwa	Limpopo	0.256 (0.176-0.336)	0.206 (0.123-0.290)
Ubuntu	Northern Cape	0.246 (0.097-0.395)	...
Mangaung	Free State	0.235 (0.219-0.252)	0.244 (0.228-0.260)
Thembelihle	Northern Cape	0.233 (0.111-0.355)	0.335 (0.232-0.438)
//Khara Hais	Northern Cape	0.232 (0.192-0.271)	0.187 (0.156-0.218)
Mafube	Free State	0.231 (0.129-0.333)	0.319 (0.235-0.403)
Tokologo	Free State	0.228 (0.099-0.357)	0.204 (0.066-0.341)
Sol Plaatjie	Northern Cape	0.225 (0.192-0.259)	0.331 (0.292-0.369)
Maquassi Hills	North West	0.225 (0.148-0.302)	0.189 (0.131-0.247)

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

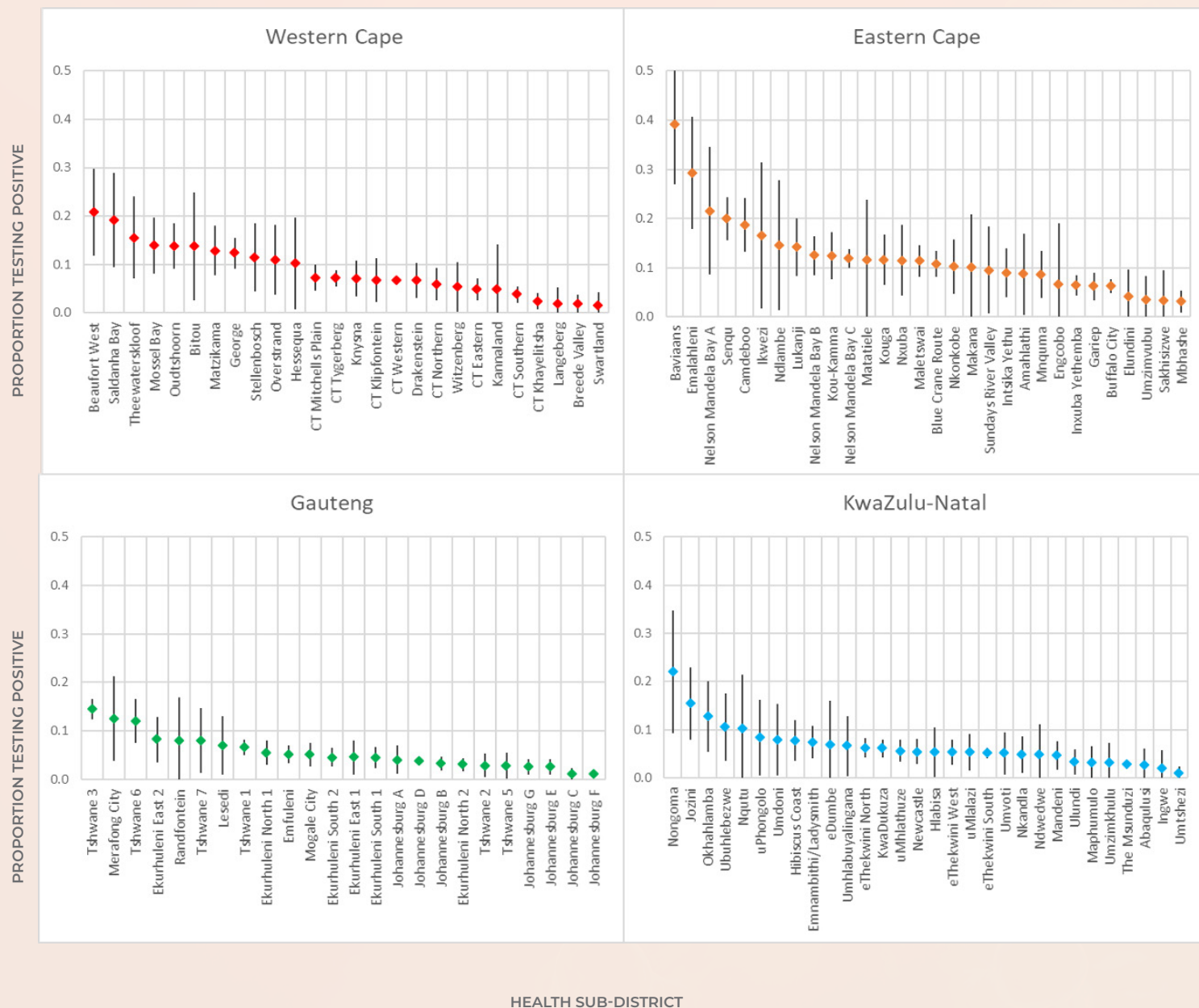
The data for every district with a non-zero proportion testing positive or where the range of confidence interval is not more than 30% (15% either side of the point estimate) for the current week is presented graphically below.



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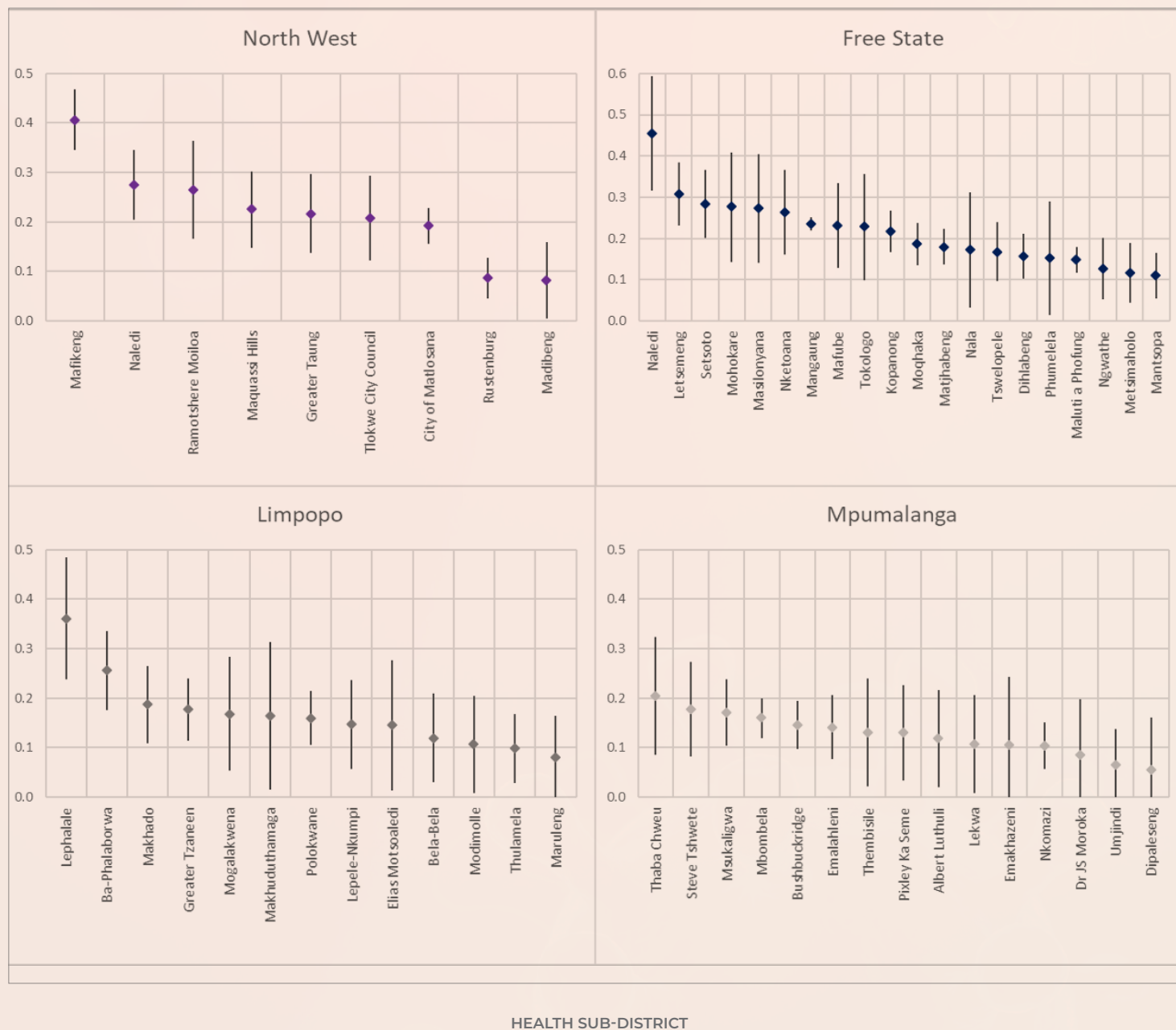
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**Figure 9.** Proportions testing positive by health sub-districts in Western Cape, Eastern Cape, Gauteng, KwaZulu-Natal, North West, Free State, Limpopo, Mpumalanga and Northern Cape provinces based on public sector data for the week of 11-17 October 2020.

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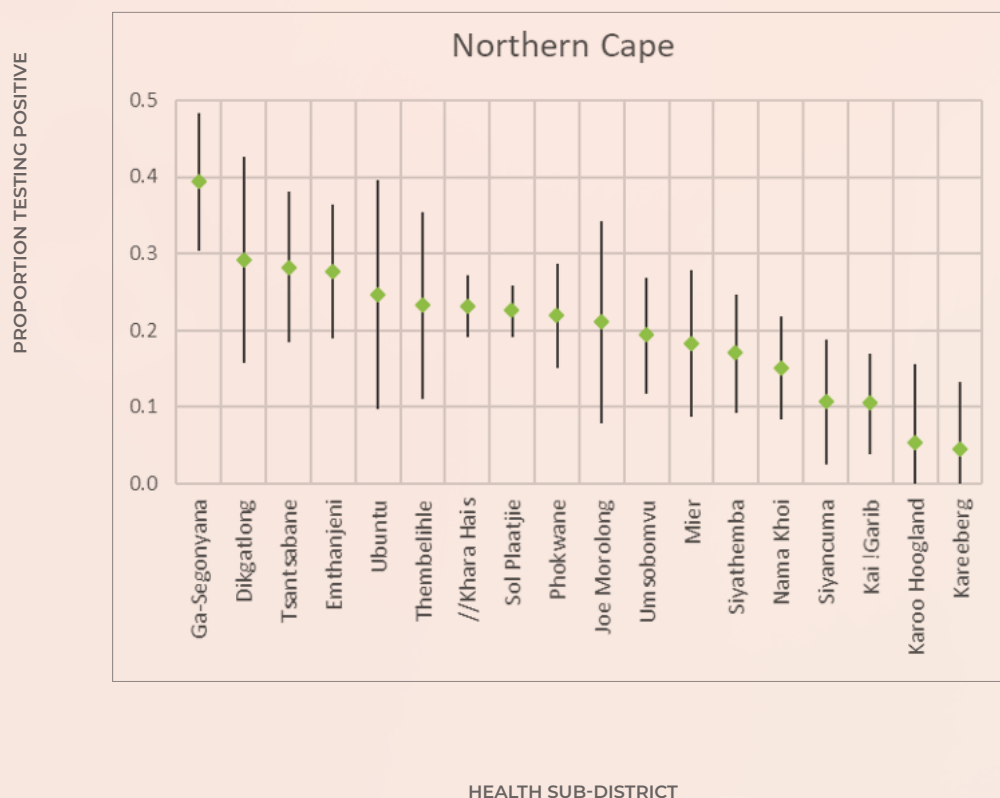
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**Figure 9.** Proportions testing positive by health sub-districts in Western Cape, Eastern Cape, Gauteng, KwaZulu-Natal, North West, Free State, Limpopo, Mpumalanga and Northern Cape provinces based on public sector data for the week of 11-17 October 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 11-17 October 2020.

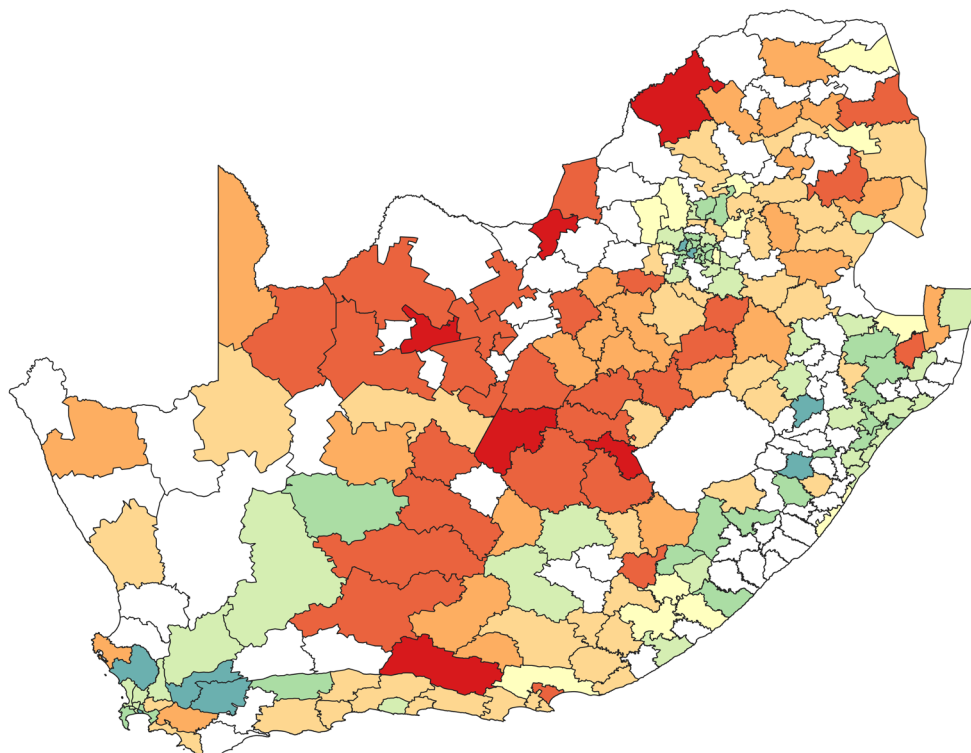
The spatial pattern of adjusted proportions testing positive in public facilities by health district and sub-district are shown for South Africa (Figure 10), Western Cape (Figure 11), Eastern Cape (Figure 12), Northern

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).

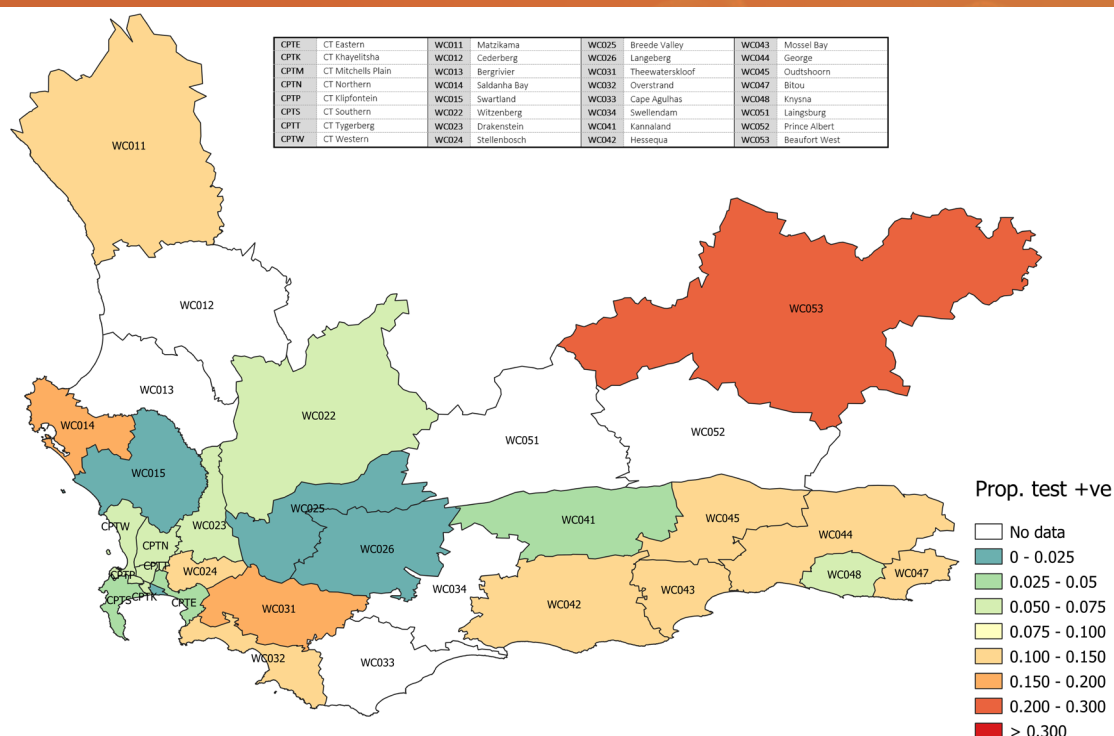


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**Figure 10.** Proportion testing positive by health sub-district based on public sector data for the week of 11-17 October 2020, South Africa. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.



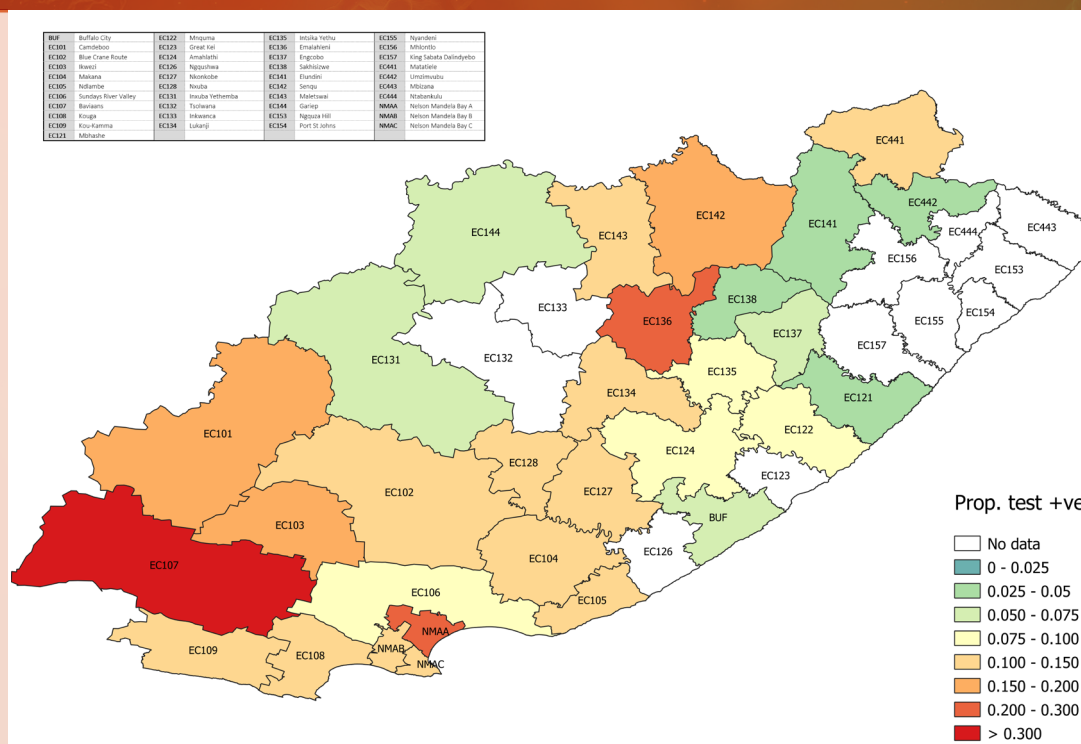
**Figure 11.** Health sub-districts in the Western Cape province with a high proportion testing positive based on public sector data for the week of 11-17 October 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%



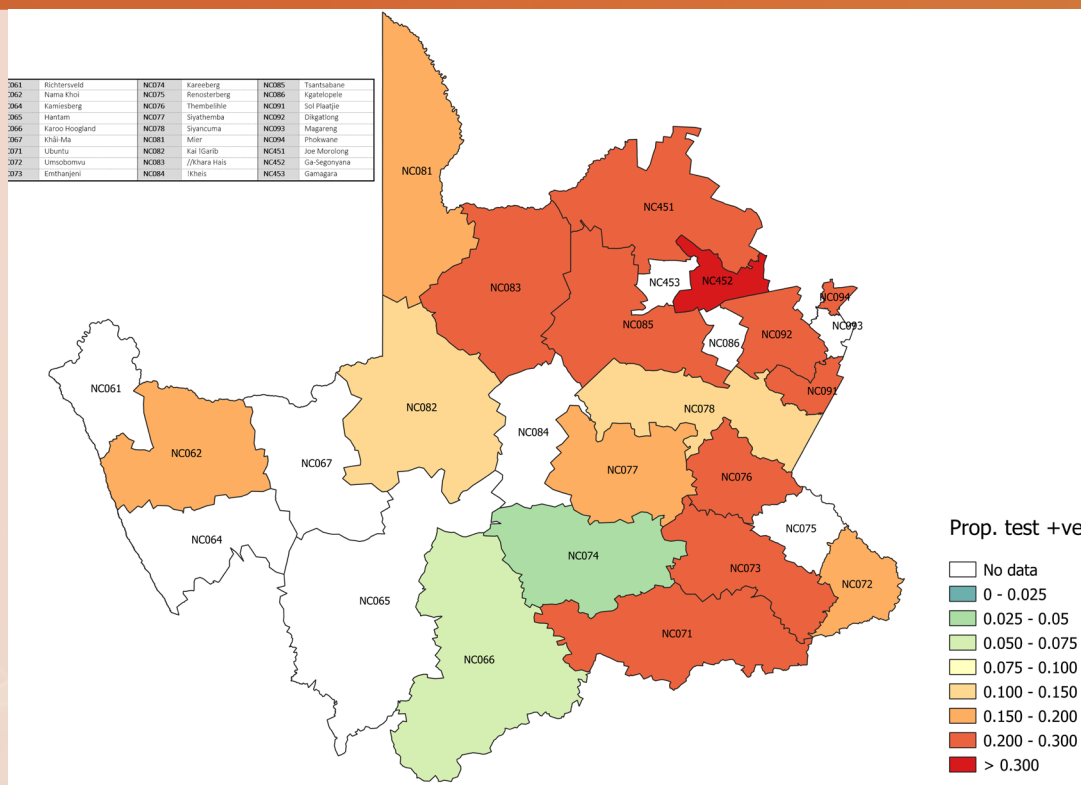
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**Figure 12.** Health sub-districts in the Eastern Cape province with a high proportion testing positive based on public sector data for the week of 11-17 October 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

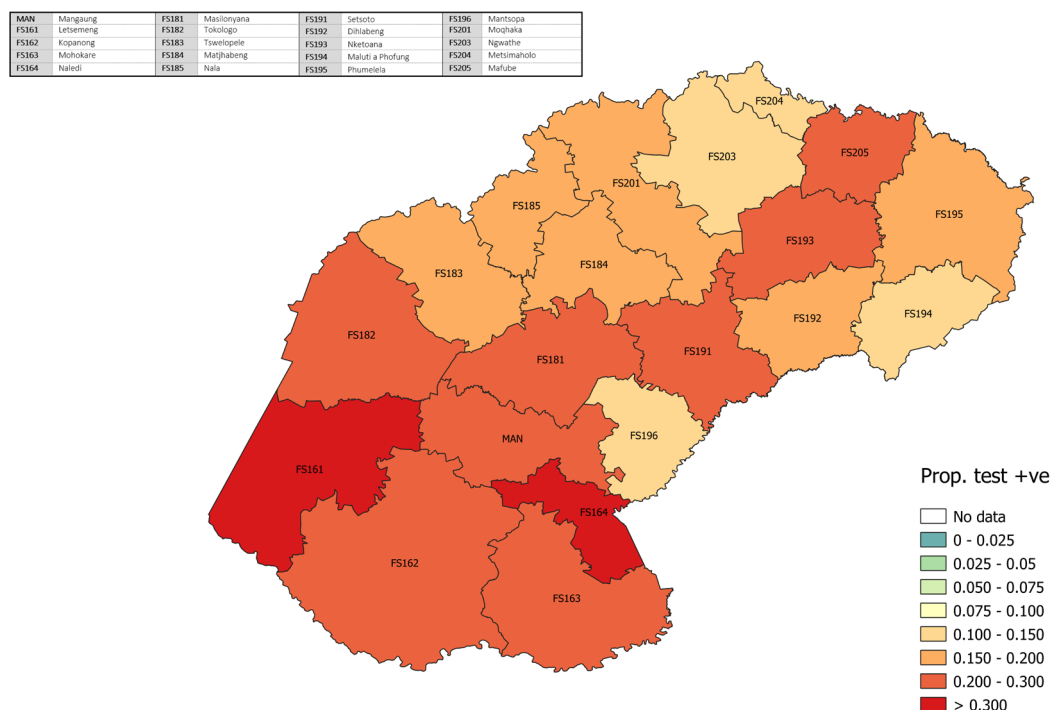


**Figure 13.** Health sub-districts in Northern Cape Province with a high proportion testing positive based on public sector data for the week of 11-17 October 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

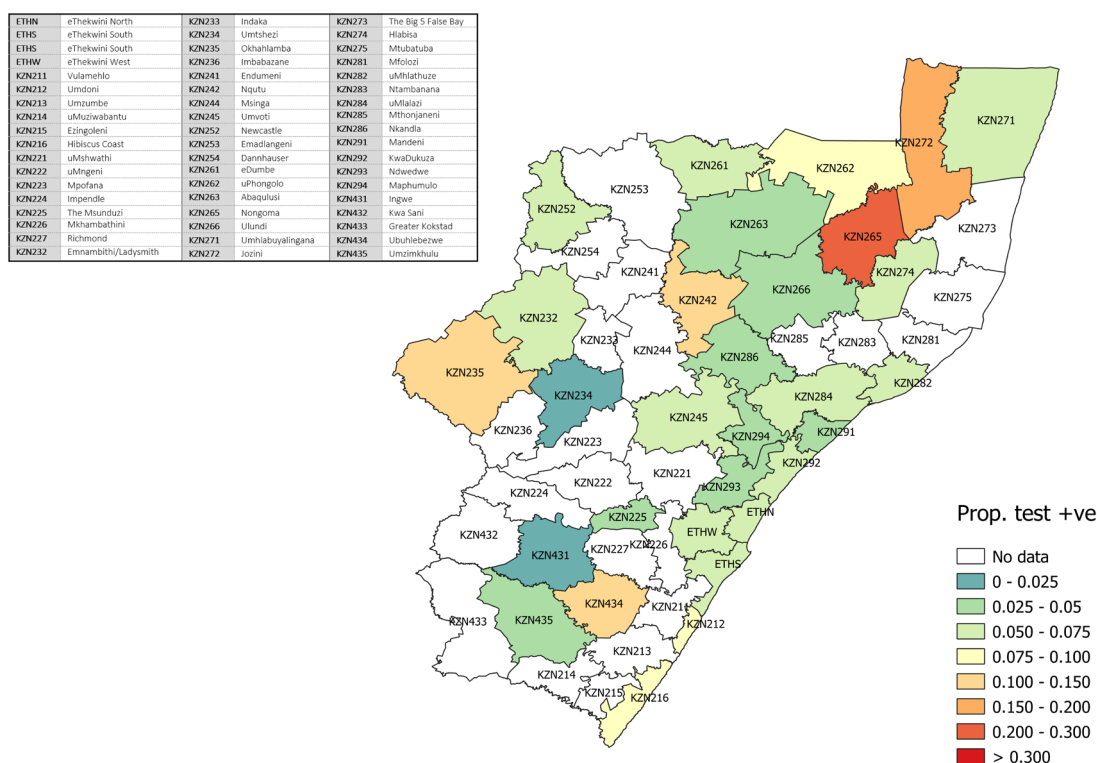
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**Figure 14.** Health sub-districts in Free State Province with a high proportion testing positive based on public sector data for the week of 11-17 October 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

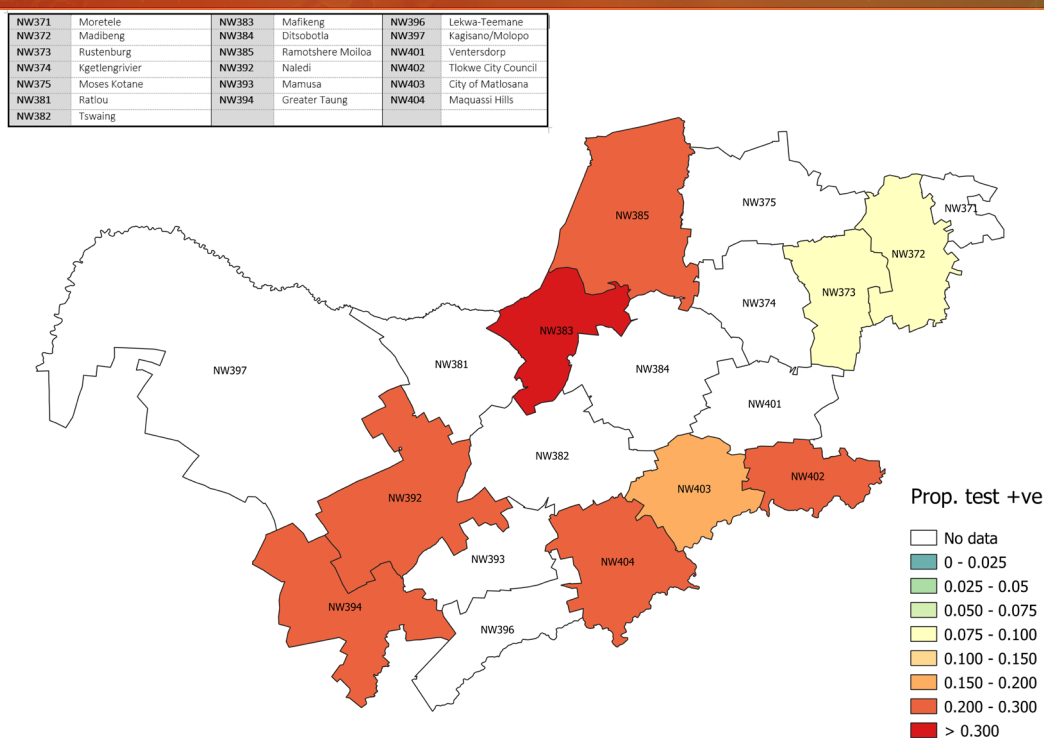


**Figure 15.** Health sub-districts in KwaZulu-Natal Province with a high proportion testing positive based on public sector data for the week of 11-17 October 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

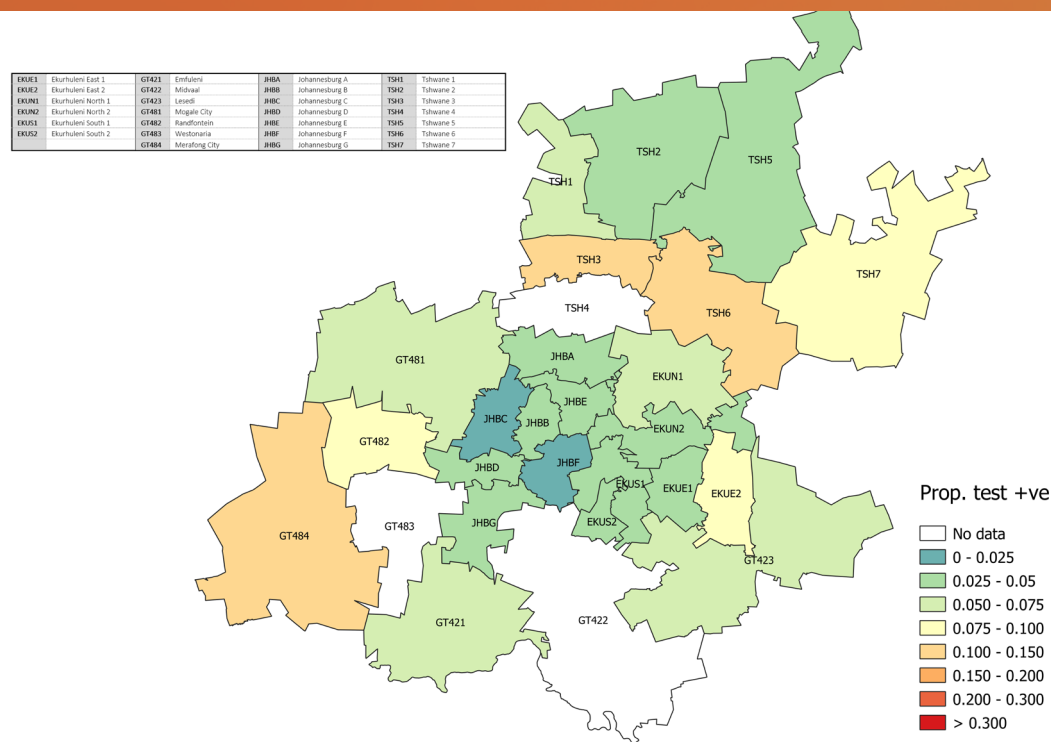
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**Figure 16.** Health sub-districts in North West Province with a high proportion testing positive based on public sector data for the week of 11-17 October 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.



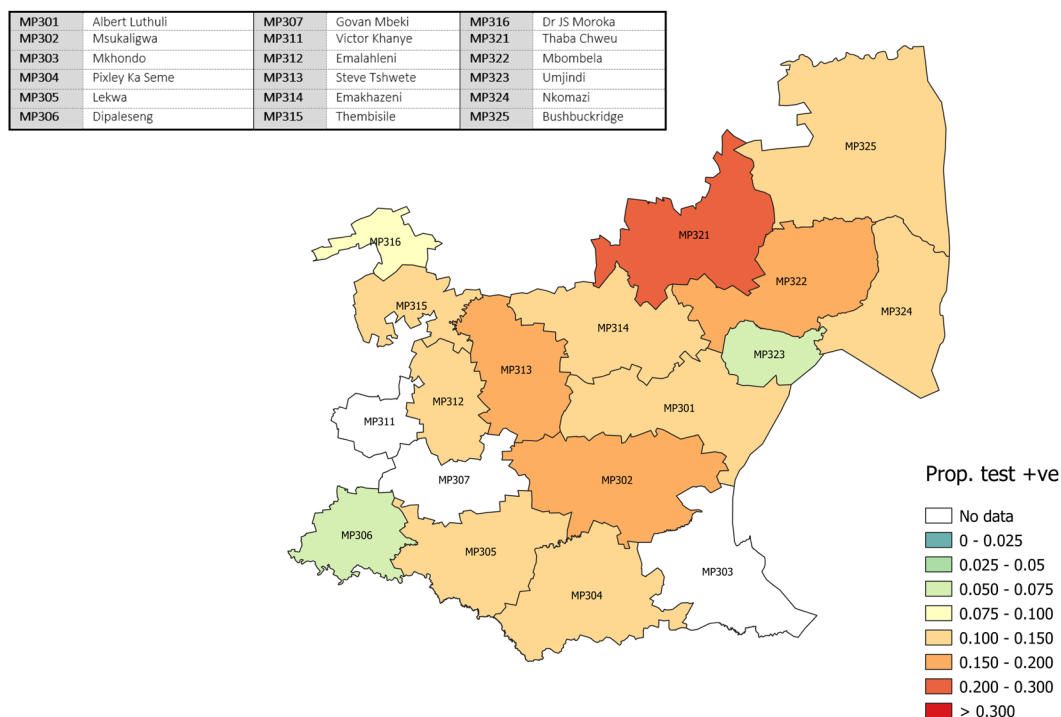
**Figure 17.** Health sub-districts in Gauteng Province with a high proportion testing positive based on public sector data for the week of 11-17 October 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.



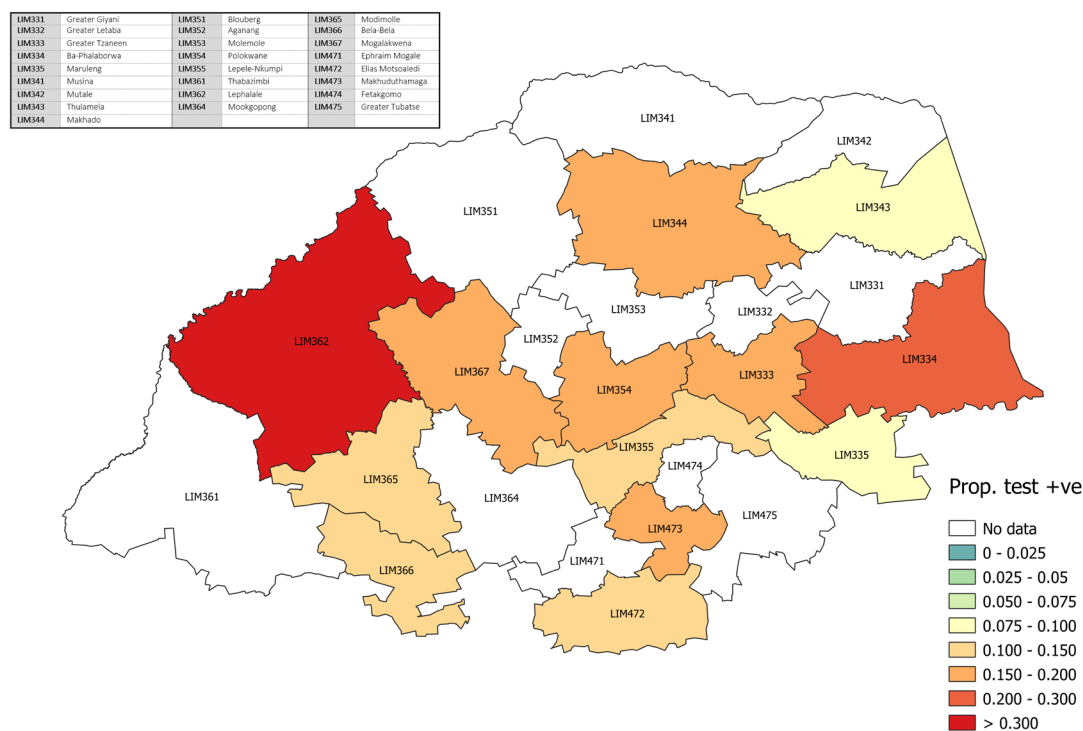
# COVID-19 TESTING SUMMARY

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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 11-17 October 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 11-17 October 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%.



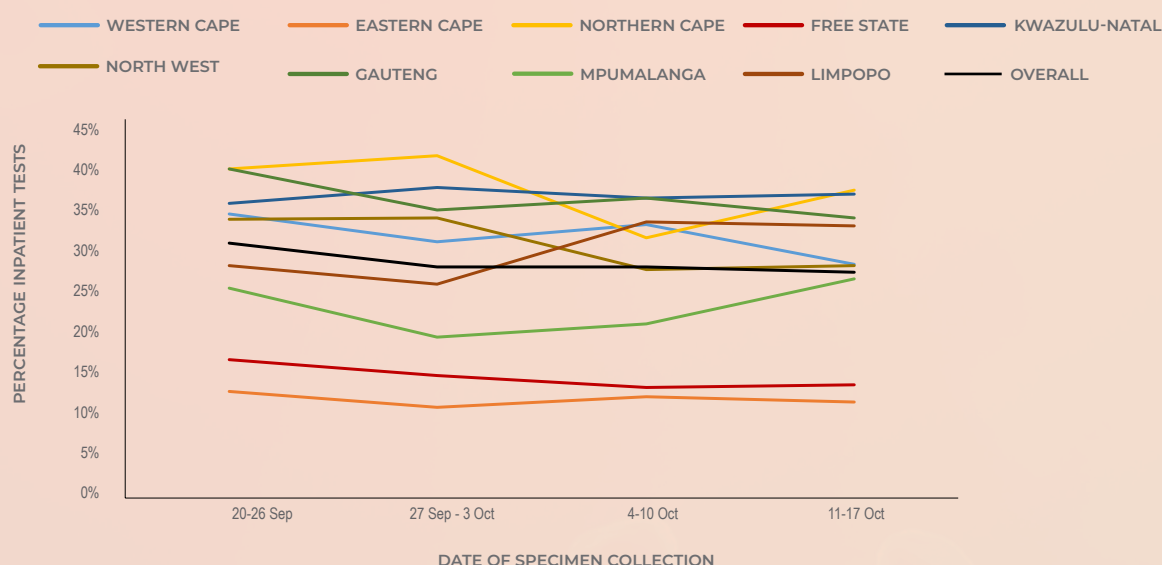
# COVID-19 TESTING SUMMARY

SOUTH AFRICA WEEK 42 2020

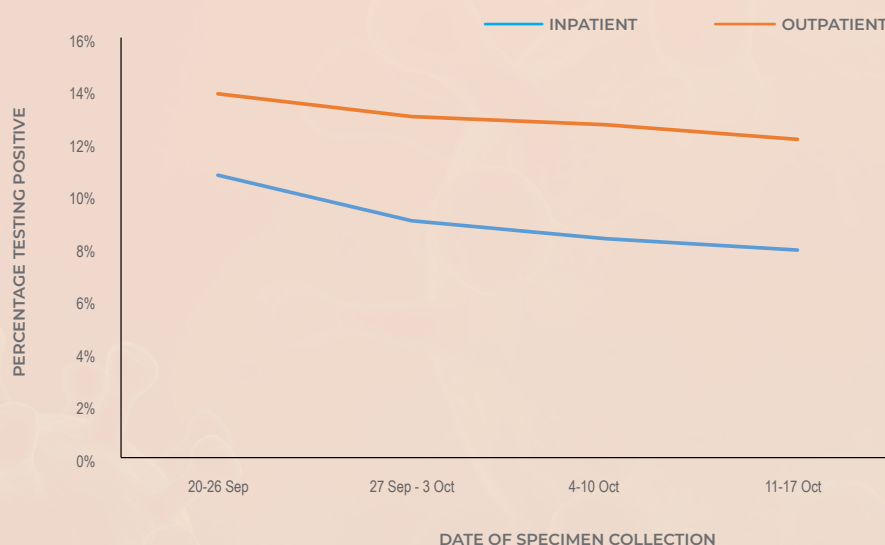
## Testing by patient admission status

In week 42, 26.8% of tests in the public sector were performed for hospitalised patients (Figure 20). The proportion of inpatient tests was highest in Northern Cape (36.6%) and KwaZulu-Natal (36.1%). Comparing week 42 to the previous week, the proportion of inpatient tests increased from 30.9% to 36.6% in

the Northern Cape, and from 20.7% to 26.1% in Mpumalanga. The percentage testing positive in week 42 remained lower among inpatients (7.9%) compared to outpatients (12.1%) (Figure 21). In the public sector in week 42 the mean laboratory turnaround time continued to be lower for inpatients (1.6 days) compared to outpatients (2.1 days) (Figure 22).



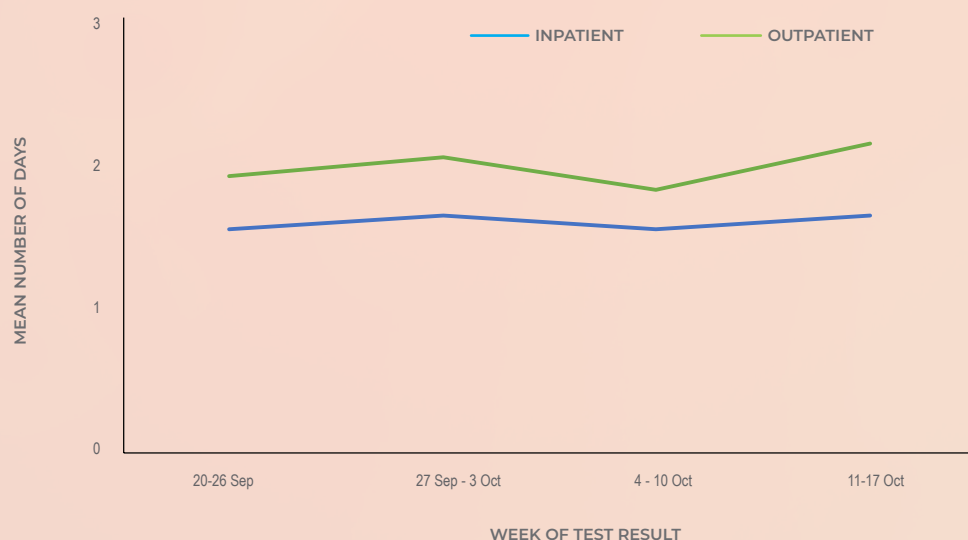
**Figure 20.** Percentage of inpatient tests performed in the public sector by province, 20 September - 17 October 2020



**Figure 21.** Percentage testing positive by patient admission status in the public sector, 20 September - 17 October 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, 20 September - 17 October 2020

## Testing by age and sex

The mean age of individuals tested in week 42 was 38.3 years, similar to the previous weeks. The mean age of individuals with a positive test in week 42 was 38.8 years, and did not differ between males (38.6 years) and

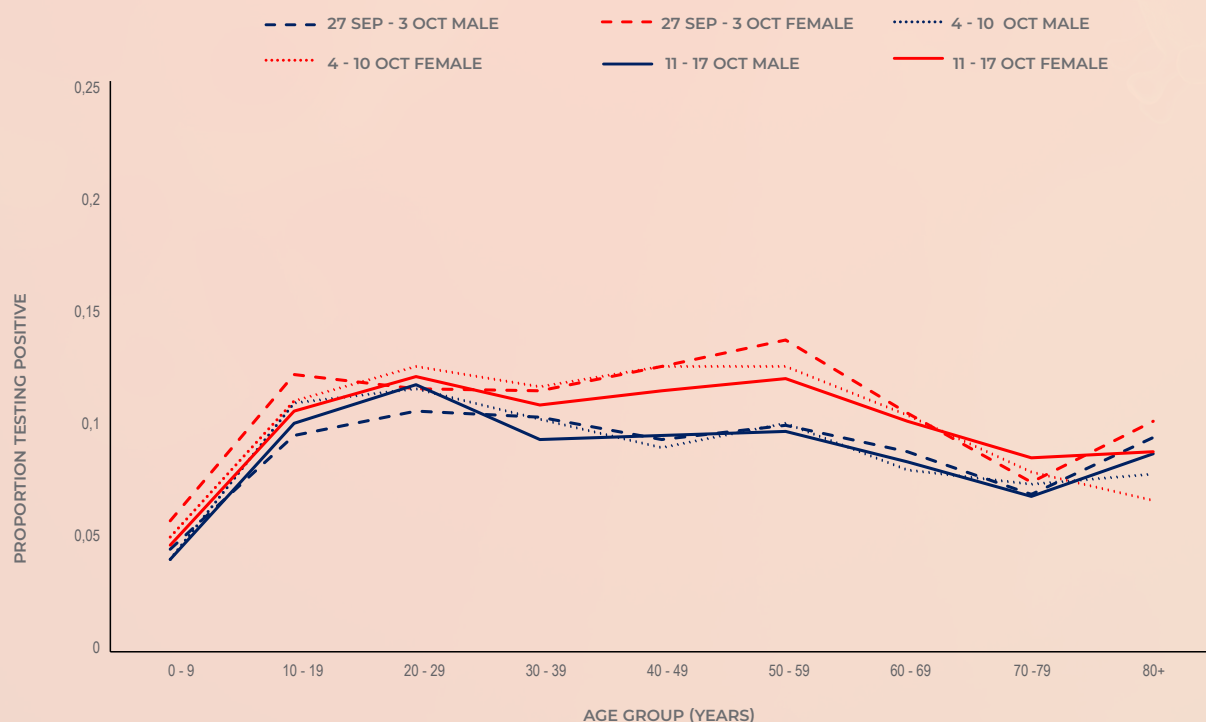
females (38.9 years,  $P=0.587$ ) (Table 7). The sex ratio (the number of males per 100 females) of individuals with a positive test in week 42 was 77.1, slightly higher than the previous 3 weeks. For both sexes, the proportion testing positive in week 42 was similar to the previous two weeks across all age groups (Figure 23).

**Table 7.** Mean age and sex ratio of individuals tested, South Africa, 20 September - 17 October 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	Positive tests
39	20 September	37.4	38.3	39.1	39.9	82.6	72.1
40	27 September	38.2	38.3	39.0	38.9	88.9	72.7
41	4 October	38.4	38.4	38.5	38.6	90.0	75.9
42	11 October	38.3	38.4	38.6	38.9	89.8	77.1

# COVID-19 TESTING SUMMARY

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**Figure 23.** Weekly proportion testing positive by age group and sex, South Africa, 27 September – 17 October 2020

From week 39 to week 42, the percentage testing positive decreased 1.7% in males (from 10.8% to 9.1%) and 1.8% in females (from 12.4% to 10.6%) (Table 8). In week 42 the percentage testing positive was

higher in females compared to males in the 0-19 years ( $P=0.007$ ), 20-39 years ( $P=0.001$ ), 40-59 years ( $P<0.001$ ) and 60-69 years ( $P=0.004$ ) age groups, and did not differ in the  $\geq 70$  years' age group.

**Table 8.** Percentage testing positive by sex and week, South Africa, 20 September – 17 October 2020

Age (years)	20-26 Sep		27 Sep-3 Oct		4-10 Oct		11-17 Oct	
	Male	Female	Male	Female	Male	Female	Male	Female
0-19	8.0%	9.6%	7.1%	9.5%	7.8%	8.8%	7.1%	8.3%
20-39	11.6%	12.5%	10.3%	11.4%	10.7%	12.0%	10.3%	11.3%
40-59	12.4%	14.6%	9.5%	13.0%	9.4%	12.5%	9.5%	11.7%
60-69	10.6%	12.8%	8.8%	10.4%	8.0%	10.3%	8.3%	10.0%
70+	9.3%	10.7%	7.6%	8.3%	7.5%	7.4%	7.3%	8.6%
<b>Total</b>	<b>10.8%</b>	<b>12.4%</b>	<b>9.2%</b>	<b>11.2%</b>	<b>9.3%</b>	<b>11.1%</b>	<b>9.1%</b>	<b>10.6%</b>



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## Limitations

- A backlog in testing of samples by 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.
- 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

Weekly testing volumes have been decreasing since the peak in week 28. The number of tests performed in week 42 were similar to the previous week and were slightly higher than has been observed since week 34 (beginning 16 August). As has been observed throughout the first wave of the pandemic, Gauteng (31.6%) performed the largest number of tests in week 42, followed by Western Cape (17.7%) and KwaZulu-Natal (15.6%). Free State (340 per 100,000 persons) and Northern Cape (318 per 100,000 persons) provinces continued to have the highest testing rates in week 42. Testing rates have decreased in all provinces since peak testing rates were observed between week 21 (Western Cape) and week 31 (Northern Cape) in the respective provinces. The overall laboratory turnaround times in week 42 was 2.3 days; 1.8 days in the public sector and 2.7 days in the private sector.

The percentage testing positive has been decreasing weekly since the peak of 31.3% in week 29. In week 42 the percentage testing positive was 9.9%, slightly lower than the previous week. A similar percentage testing positive was last observed in week 23, beginning 31 May. Percentages testing positive were  $\geq 20\%$  in Northern Cape and Free State, between 10-19% in Eastern Cape, North West, Mpumalanga and Limpopo, and  $<10\%$  in Gauteng, KwaZulu-Natal and Western Cape. Compared to the previous week, the percentage testing positive increased in KwaZulu-Natal, decreased in Western Cape and North West, and did not change in Eastern Cape, Northern Cape, Free State, Gauteng, Mpumalanga and Limpopo provinces. Of the 25 sub-districts with the highest proportion testing positive in the past week, 9 were in the Free State, 8 in Northern Cape and 4 in the North West.