

COVID-19 TESTING SUMMARY



NATIONAL INSTITUTE FOR
COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 40 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 3 October 2020 (Week 40 of 2020).

HIGHLIGHTS

- In the period 1 March 2020 through 3 October 2020, 3,705,951 laboratory tests for SARS-CoV-2 have been conducted nationally
- In week 40 testing volumes increased from week 39, but were lower than week 38
- Free State (340 per 100,000 persons) and Northern Cape (320 per 100,000 persons) provinces had the highest testing rates in week 40, however testing rates continued to decrease in all provinces
- Percentage testing positive has been decreasing weekly since the peak of 31.4% in week 29. In week 40 the percentage testing positive was 10.0%, the lowest since week 23 (10.1%)
- Percentages testing positive were $\geq 20\%$ in Northern Cape and Free State, between 10-19% in North West, Mpumalanga and Limpopo, and $< 10\%$ in Gauteng, KwaZulu-Natal, Western Cape and Eastern Cape
- Compared to the previous week, the percentage testing positive decreased in Northern Cape, Free State, KwaZulu-Natal, North West, Gauteng, Mpumalanga and Limpopo, and did not change in Western Cape and Eastern Cape provinces
- Of the 25 sub-districts with the highest proportion testing positive in the past week, 9 were in the Northern Cape, 9 in the Free State, and 4 in the Eastern Cape province

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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 3 October 2020 (week 40).

Testing volumes and proportion testing positive

From 1 March through 3 October 2020, 3,705,951 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=272,815), but have subsequently decreased. In week 40, 93,732 tests were performed, which is an increase from week 39 (n=78,874). 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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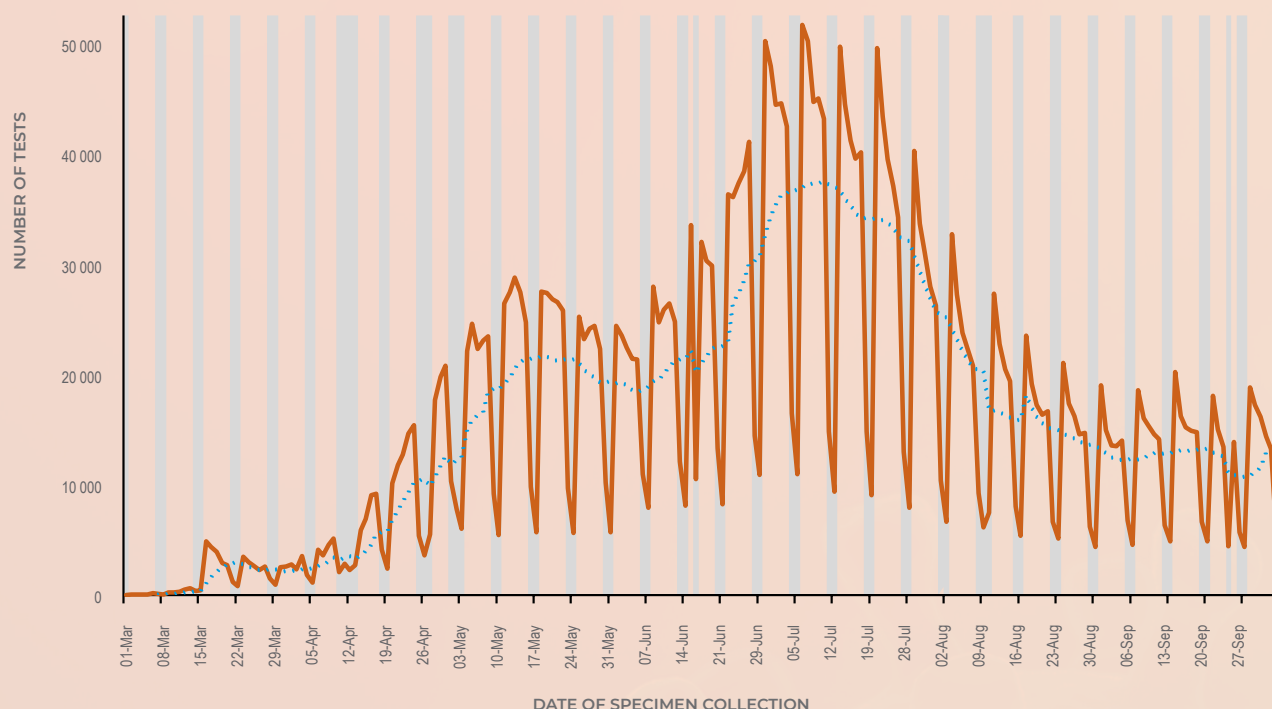


Figure 1. Number of laboratory tests conducted by date of specimen collection, South Africa, 1 March – 3 October 2020. Blue dotted line shows the 7-day moving average of the number of tests conducted. Grey bars highlight weekend days and public holidays.

The overall percentage testing positive from week 10 through 40 was 17.7% (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 21.3% decrease in the percentage testing positive to 10.0% in week 40, and was also lower than week 39 (11.6%, $P < 0.001$). This is the lowest percentage testing positive since week 23 when the percentage testing positive was 9.9% (Figure 2).

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Table 1. Weekly number of tests conducted and positive tests, South Africa, 1 March – 3 October 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	2328 (0.1)	88	3.8
12	15-Mar	21323 (0.6)	826	3.9
13	22-Mar	17041 (0.5)	470	2.8
14	29-Mar	17386 (0.5)	400	2.3
15	05-Apr	24603 (0.7)	567	2.3
16	12-Apr	41876 (1.1)	1049	2.5
17	19-Apr	75906 (2.0)	1934	2.5
18	26-Apr	89515 (2.4)	2895	3.2
19	03-May	136923 (3.7)	5560	4.1
20	10-May	157062 (4.2)	7442	4.7
21	17-May	156455 (4.2)	10526	6.7
22	24-May	141493 (3.8)	11708	8.3
23	31-May	135907 (3.7)	13498	9.9
24	07-Jun	156740 (4.2)	20512	13.1
25	14-Jun	164993 (4.5)	29927	18.1
26	21-Jun	221880 (6.0)	50546	22.8
27	28-Jun	269114 (7.3)	69280	25.7
28	05-Jul	272762 (7.4)	79725	29.2
29	12-Jul	250458 (6.8)	78394	31.3
30	19-Jul	236408 (6.4)	72532	30.7
31	26-Jul	185716 (5.0)	53662	28.9
32	02-Aug	149556 (4.0)	36913	24.7
33	09-Aug	116723 (3.1)	23460	20.1
34	16-Aug	109862 (3.0)	19112	17.4
35	23-Aug	99749 (2.7)	14657	14.7
36	30-Aug	90260 (2.4)	11426	12.7
37	06-Sep	93790 (2.5)	10815	11.5
38	13-Sep	97107 (2.6)	10910	11.2
39	20-Sep	78874 (2.1)	9176	11.6
40	27-Sep	93732 (2.5)	9365	10.0
Total		3705951 (100.0)	657384	17.7

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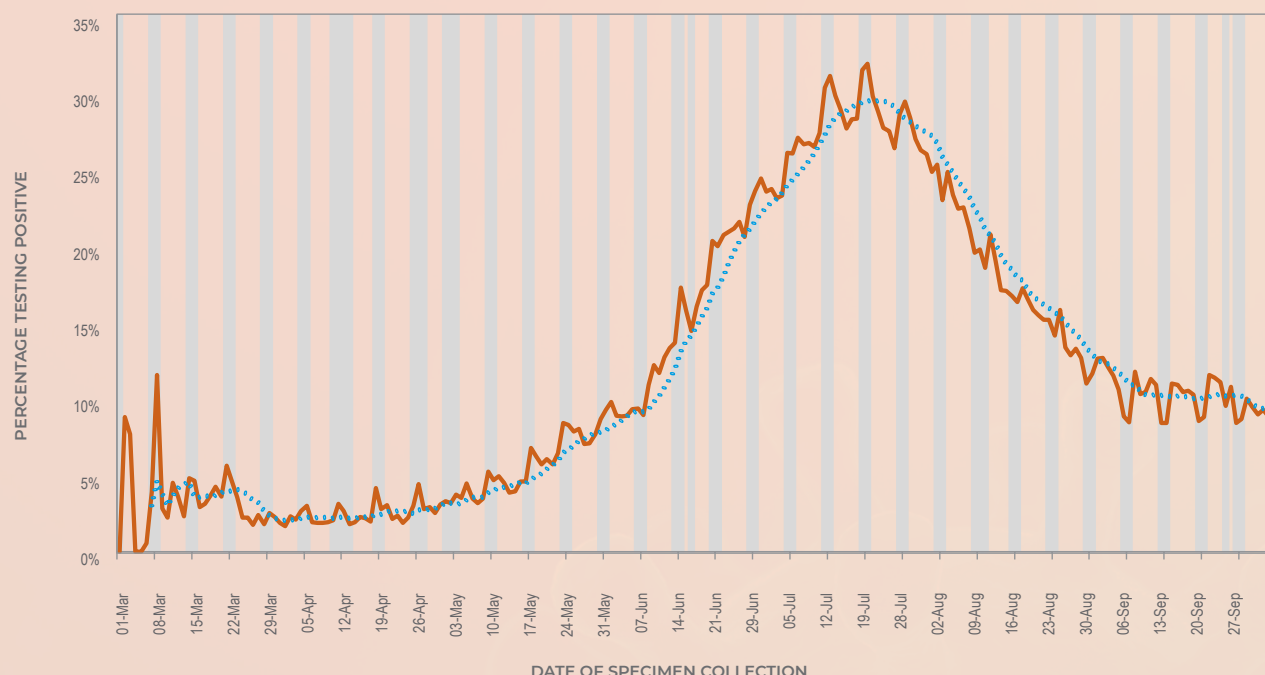


Figure 2. Percentage of laboratory tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March – 3 October 2020. Blue dotted line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

Testing in private and public sectors

From 1 March through 3 October, 1,702,378 laboratory tests were conducted in public sector laboratories, with 16.1% testing positive. Over this same period, private sector laboratories conducted 2,002,573 tests, with 19.1% testing positive (Table 2). Overall the public sector has conducted 45.9% of tests and accounted for 41.8% 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 (32.9%). From week 39 to week 40, the percentage testing positive decreased in both sectors; by 1.3% in the public sector and by 1.6% in the private sector. In week 40 the percentage testing positive continued to be higher in the public sector (11.2%) compared to the private sector (9.1%) ($P < 0.001$),

as has been observed since week 34.

The mean turnaround time for tests conducted in week 40 was 2.2 days and had increased slightly compared to the previous few weeks. The turnaround time in the public sector was similar to previous weeks (1.8 days), however the turnaround time in the private sector increased to 2.5 days in week 40 (Figure 3). Turnaround times for public sector tests were < 2 days in all provinces except for the Northern Cape (3.9 days) and Mpumalanga (2.3 days) (Figure 4). While the turnaround time in Free State decreased in the past week, increases were observed in the Northern Cape, Mpumalanga and Limpopo. Five of the twenty-eight NHLS laboratories performing testing for SARS-CoV-2 had turnaround times > 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 – 3 October 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)	1978	76 (3.8)	15.0	13.6	0.892
12	15-Mar	1345	51 (3.8)	19978	775 (3.9)	6.3	6.2	0.977
13	22-Mar	3359	124 (3.7)	13682	346 (2.5)	19.7	26.4	1.460
14	29-Mar	5611	159 (2.8)	11775	241 (2.0)	32.3	39.8	1.385
15	05-Apr	11337	318 (2.8)	13266	249 (1.9)	46.1	56.1	1.494
16	12-Apr	23772	608 (2.6)	18104	441 (2.4)	56.8	58.0	1.050
17	19-Apr	54166	1477 (2.7)	21740	457 (2.1)	71.4	76.4	1.297
18	26-Apr	66216	2284 (3.4)	23299	611 (2.6)	74.0	78.9	1.315
19	03-May	92331	4250 (4.6)	44592	1310 (2.9)	67.4	76.4	1.567
20	10-May	104973	5102 (4.9)	52089	2340 (4.5)	66.8	68.6	1.082
21	17-May	95482	6618 (6.9)	60973	3908 (6.4)	61.0	62.9	1.081
22	24-May	74263	5949 (8.0)	67230	5759 (8.6)	52.5	50.8	0.935
23	31-May	60263	6099 (10.1)	75644	7399 (9.8)	44.3	45.2	1.035
24	07-Jun	60010	7352 (12.3)	96730	13160 (13.6)	38.3	35.8	0.901
25	14-Jun	56020	11069 (19.8)	108973	18858 (17.3)	34.0	37.0	1.142
26	21-Jun	82665	18859 (22.8)	139215	31687 (22.8)	37.3	37.3	1.002
27	28-Jun	97361	25130 (25.8)	171753	44150 (25.7)	36.2	36.3	1.004
28	05-Jul	108057	30275 (28.0)	164705	49450 (30.0)	39.6	38.0	0.933
29	12-Jul	101369	29405 (29.0)	149089	48989 (32.9)	40.5	37.5	0.883
30	19-Jul	96285	28427 (29.5)	140123	44105 (31.5)	40.7	39.2	0.938
31	26-Jul	73983	21341 (28.8)	111733	32321 (28.9)	39.8	39.8	0.997
32	02-Aug	64137	15750 (24.6)	85419	21163 (24.8)	42.9	42.7	0.991
33	09-Aug	53701	10409 (19.4)	63022	13051 (20.7)	46.0	44.4	0.936
34	16-Aug	50944	8937 (17.5)	58918	10175 (17.3)	46.4	46.8	1.016
35	23-Aug	45531	7241 (15.9)	54218	7416 (13.7)	45.6	49.4	1.163
36	30-Aug	41083	5616 (13.7)	49177	5810 (11.8)	45.5	49.2	1.157
37	06-Sep	46393	5986 (12.9)	47397	4829 (10.2)	49.5	55.3	1.266
38	13-Sep	49090	6090 (12.4)	48017	4820 (10.0)	50.6	55.8	1.236
39	20-Sep	40903	5127 (12.5)	37971	4049 (10.7)	51.9	55.9	1.175
40	27-Sep	41127	4592 (11.2)	52605	4773 (9.1)	43.9	49.0	1.231
Total		1702378	274662 (16.1)	2003573	382722 (19.1)	45.9	41.8	0.845

^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)

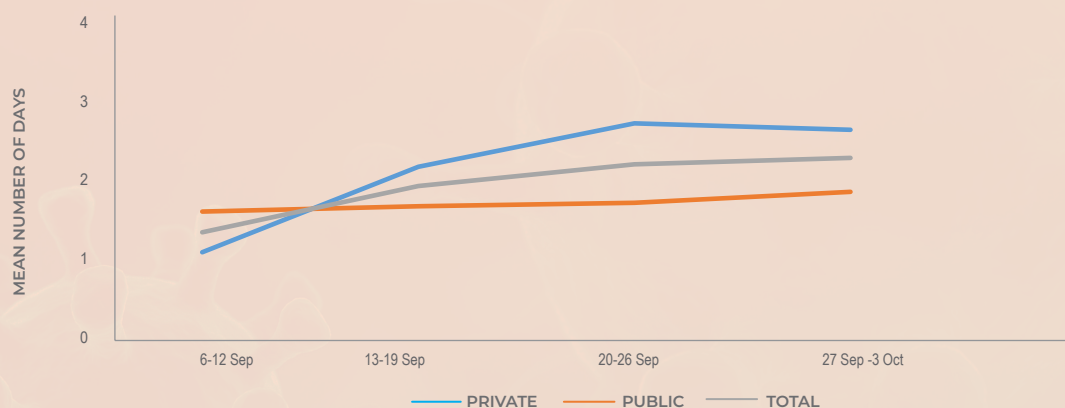


Figure 3. Mean number of days between date of specimen collection and date of test result, by week of test result, South Africa, 6 September – 3 October 2020

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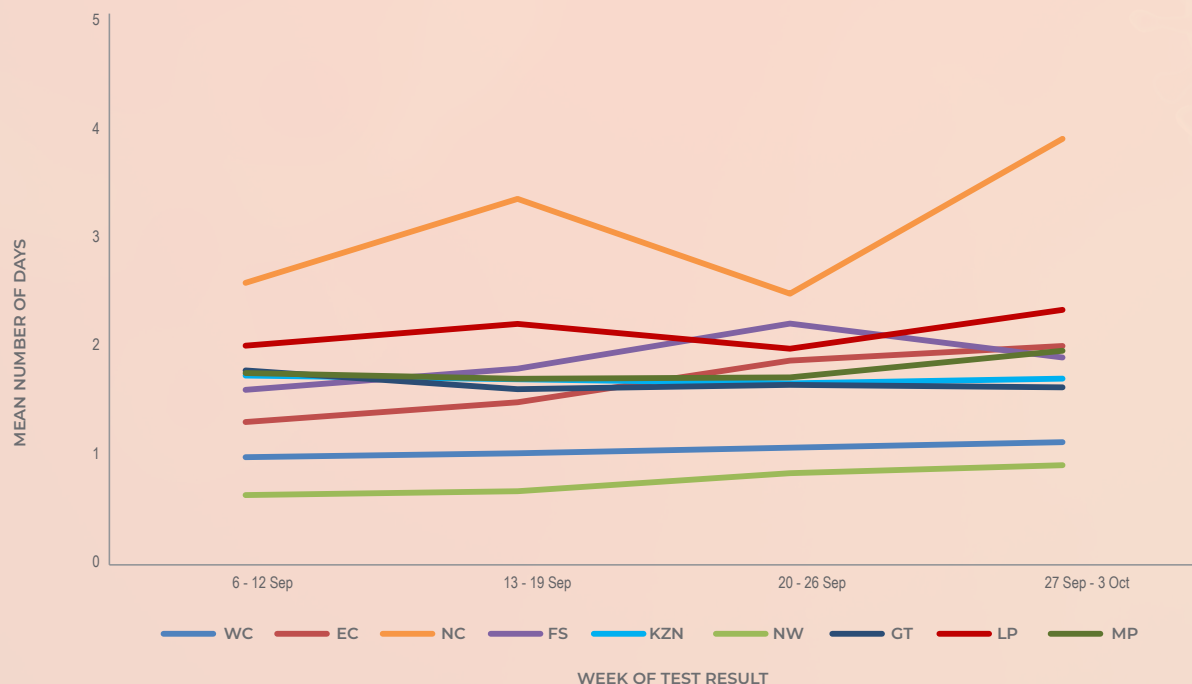


Figure 4. Mean number of days between date of specimen collection and date of test result, by week of test result and province, public sector, South Africa, 6 September – 3 October 2020. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal; GT, Gauteng; NC, Northern Cape; NW, North West; MP, Mpumalanga; LP, Limpopo

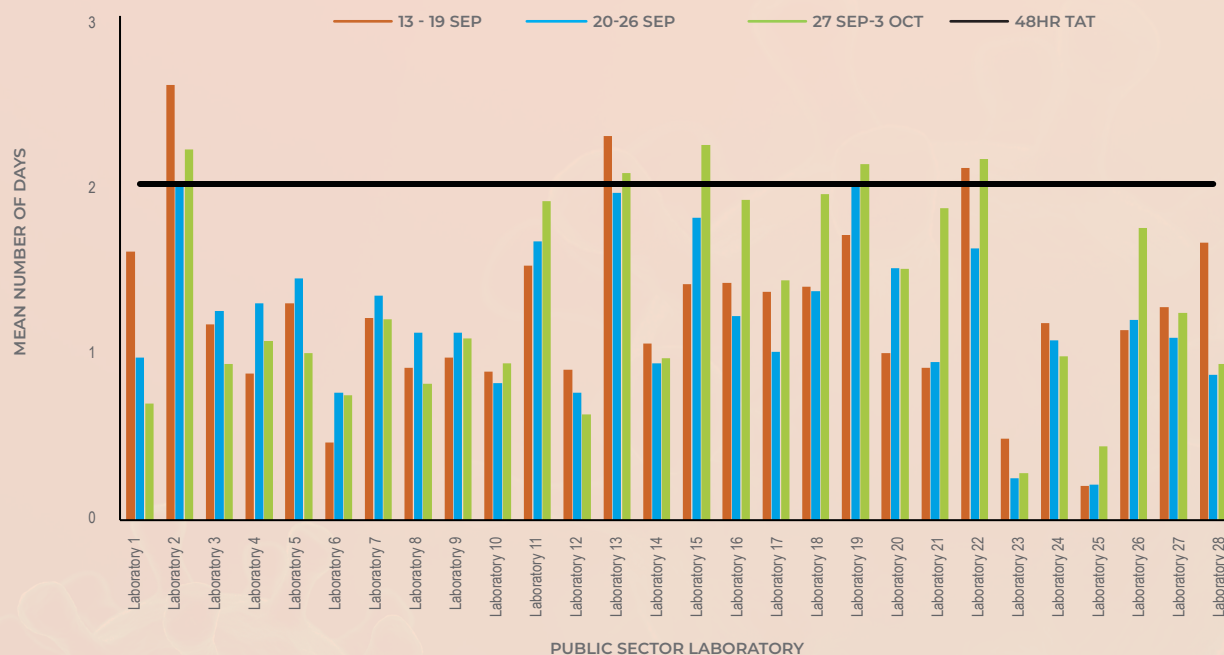


Figure 5. Mean number of days between date of specimen collection and date of test result, by public sector laboratory, 13 September – 3 October 2020. The horizontal black line indicates 48-hour turnaround time (TAT).

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Testing by province

As observed in previous weeks Gauteng (30.8%) performed the largest number of tests in week 40, followed by KwaZulu-Natal (16.0%) and Western Cape (14.7%) provinces (Table 3). All other provinces conducted <10,000 tests in week 40. As has been observed since week 31, Free State (340 per 100,000 persons) and Northern Cape (320 per 100,000 persons) provinces had the highest testing rates in week 40 (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.

Consistent with the previous three weeks, percentages testing positive remained $\geq 20\%$ in Northern Cape (26.6%) and Free State (21.9%), between 10-19% in North

West, Mpumalanga and Limpopo, and <10% in Gauteng, KwaZulu-Natal, Western Cape and Eastern Cape in week 40 (Figure 7). The percentage testing positive in week 40 compared to week 39 decreased in Northern Cape ($P<0.001$), Free State ($P<0.001$), KwaZulu-Natal ($P<0.001$), North West ($P=0.006$), Gauteng ($P<0.001$), Mpumalanga ($P<0.001$), and Limpopo ($P=0.011$), and did not change in Western Cape ($P=0.075$) and Eastern Cape ($P=0.569$) 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).

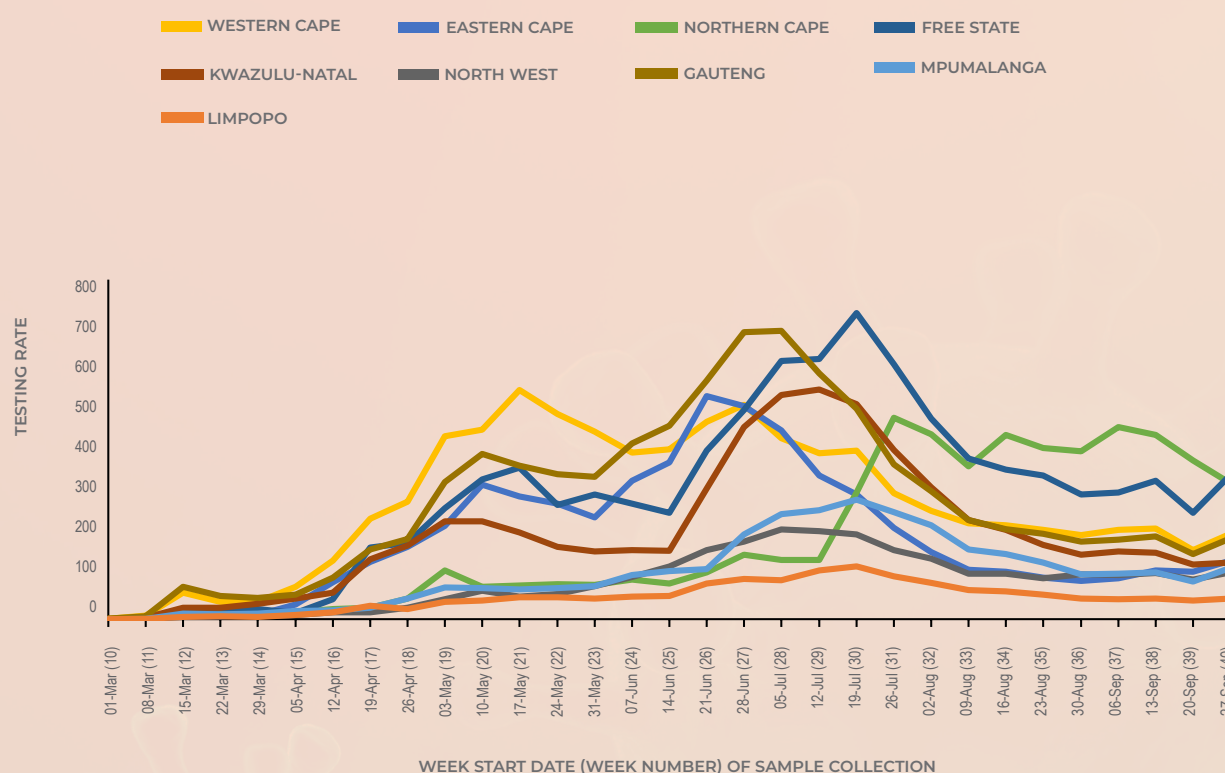


Figure 6. Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 1 March – 3 October 2020

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Table 3. Weekly number of tests performed and positive tests, by province, South Africa, 6 - 26 September 2020

Province	Population ^a	6-12 Sep		13-19 Sep		20-26 Sep		Tests per 100,000 persons	Change in percentage positive ^b
		No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)		
Western Cape	6844272	14660	992 (6.8)	11184	837 (7.5)	13770	950 (6.9)	162	0.8%
Eastern Cape	6712276	7738	724 (9.4)	7516	707 (9.4)	9289	850 (9.2)	104	-0.3%
Northern Cape	1263875	5495	1543 (28.1)	4724	1443 (30.5)	4038	1076 (26.6)	307	-1.0%
Free State	2887465	9429	2225 (23.6)	7225	1836 (25.4)	9820	2148 (21.9)	241	1.7%
KwaZulu-Natal	11289086	17667	1244 (7.0)	14564	918 (6.3)	14975	799 (5.3)	122	-1.0%
North West	4027160	4374	846 (19.3)	3742	746 (19.9)	4412	774 (17.5)	91	0.4%
Gauteng	15176115	29643	2085 (7.0)	23186	1565 (6.7)	28856	1716 (5.9)	146	-0.2%
Mpumalanga	4592187	5042	760 (15.1)	4055	612 (15.1)	5567	562 (10.1)	83	-0.4%
Limpopo	5982584	2906	482 (16.6)	2610	508 (19.5)	2872	483 (16.8)	42	2.6%
Unknown		153	9 (5.9)	68	4 (5.9)	133	7 (5.3)		0.1%
Total	58750220	97107	10910 (11.2)	78874	9176 (11.6)	93732	9365 (10.0)	127	0.0%

^a2019 Mid-year population Statistics SA

^bCurrent week compared to previous week

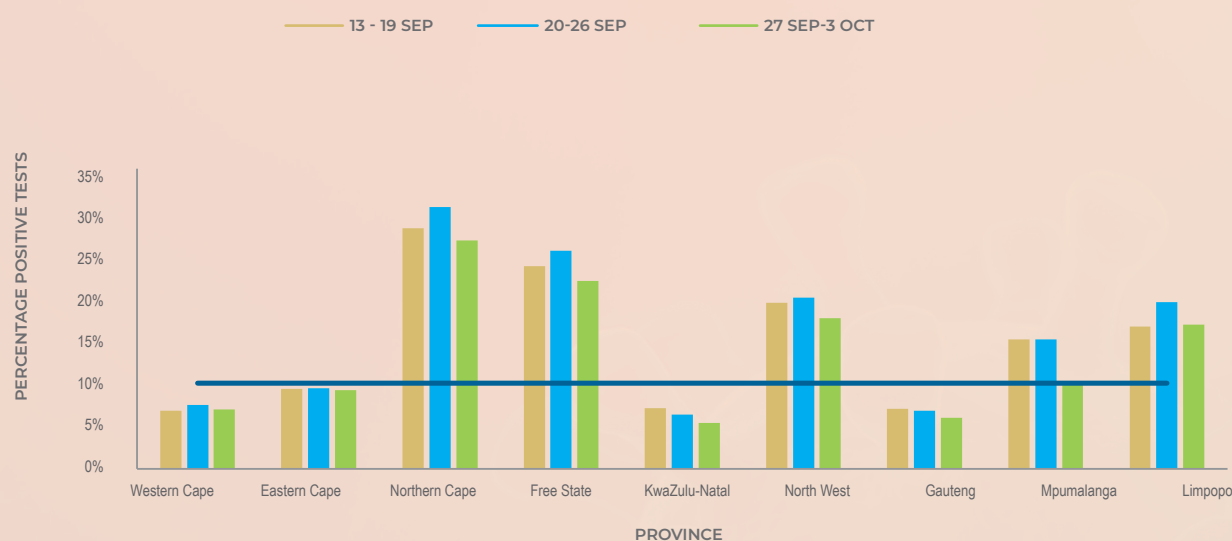


Figure 7. Weekly percentage testing positive, by province, South Africa, 13 September – 3 October 2020. The horizontal blue line shows the national mean for week 40, beginning 27 September 2020.

Testing in the public sector

In the public sector, the percentage testing positive decreased slightly from 12.5% in week 39 to 11.2% in week 40 ($P < 0.001$) (Table 4). The percentage testing positive in week 40 was highest in the Northern Cape

(29.6%), North West (23.1%), Free State (23.0%) and Limpopo (22.5%) 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, 13 September – 3 October 2020

Province	13-19 Sep		20-26 Sep		27 Sep-3 Oct	
	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	7049	487 (6.9)	4982	416 (8.4)	5725	381 (6.7)
Eastern Cape	5335	579 (10.9)	5472	543 (9.9)	6608	690 (10.4)
Northern Cape	3265	1011 (31.0)	2993	964 (32.2)	1919	568 (29.6)
Free State	5779	1343 (23.2)	4286	1019 (23.8)	4951	1141 (23.0)
KwaZulu-Natal	10466	793 (7.6)	8848	542 (6.1)	7630	423 (5.5)
North West	1746	446 (25.5)	1572	431 (27.4)	1713	395 (23.1)
Gauteng	12506	926 (7.4)	10064	689 (6.8)	9900	570 (5.8)
Mpumalanga	1759	290 (16.5)	1533	257 (16.8)	1571	174 (11.1)
Limpopo	1185	215 (18.1)	1153	266 (23.1)	1110	250 (22.5)
Unknown	0	0 (0.0)	0	0 (0.0)	0	0 (0.0)
Total	49090	6090 (12.4)	40903	5127 (12.5)	41127	4592 (11.2)

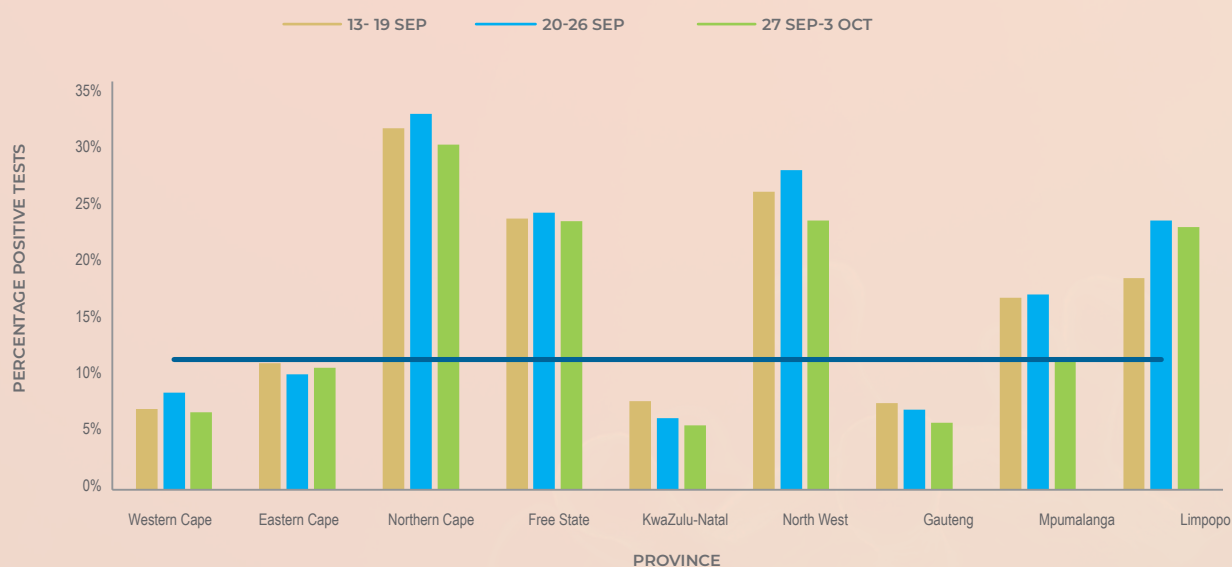


Figure 8. Weekly percentage testing positive in the public sector, by province, South Africa, 13 September – 3 October 2020. The horizontal blue line shows the national mean for week 40, beginning 27 September 2020.

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 27 September – 3 October, with the highest proportion testing positive nationally.

This week's list is dominated by facilities in the Northern Cape and Free State (9 each), with 4 facilities in the Eastern Cape, and one each in North West, Mpumalanga, and the Western Cape.

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Table 5. Public healthcare facilities with a high proportion testing positive, 27 September – 3 October 2020

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Eastern Cape	51	0.647 (0.516;0.778)
Facility 2	Free State	31	0.516 (0.340;0.692)
Facility 3	Northern Cape	69	0.507 (0.389;0.625)
Facility 4	Free State	54	0.426 (0.294;0.558)
Facility 5	Northern Cape	284	0.423 (0.365;0.480)
Facility 6	North West	95	0.411 (0.312;0.509)
Facility 7	Mpumalanga	49	0.408 (0.271;0.546)
Facility 8	Free State	28	0.393 (0.212;0.574)
Facility 9	Northern Cape	29	0.379 (0.203;0.556)
Facility 10	Free State	61	0.377 (0.255;0.499)
Facility 11	Western Cape	32	0.375 (0.207;0.543)
Facility 12	Northern Cape	32	0.375 (0.207;0.543)
Facility 13	Northern Cape	51	0.373 (0.240;0.505)
Facility 14	Free State	35	0.371 (0.211;0.532)
Facility 15	Eastern Cape	33	0.364 (0.200;0.528)
Facility 16	Free State	36	0.361 (0.204;0.518)
Facility 17	Northern Cape	86	0.360 (0.259;0.462)
Facility 18	Free State	31	0.355 (0.186;0.523)
Facility 19	Northern Cape	26	0.346 (0.163;0.529)
Facility 20	Eastern Cape	77	0.338 (0.232;0.443)
Facility 21	Northern Cape	63	0.333 (0.217;0.450)
Facility 22	Free State	27	0.333 (0.156;0.511)
Facility 23	Eastern Cape	111	0.324 (0.237;0.411)
Facility 24	Free State	417	0.324 (0.279;0.369)
Facility 25	Northern Cape	237	0.321 (0.261;0.380)

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 (PTP) are shown in the table below. The list of districts continues to be dominated by

those in the Northern Cape (9) and Free State (6). Of some concern is the re-arrival of 4 districts in the Eastern Cape in the list.

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Table 6. Health sub-districts with the highest proportion testing positive based on public sector data for the week of 27 September – 3 October 2020

Health district or sub-district	Province	PTP (95% CI)	Previous week
Mogalakwena	Limpopo	0.383 (0.262-0.504)	0.141 (0.013-0.269)
Ga-Segonyana	Northern Cape	0.362 (0.236-0.487)	0.259 (0.180-0.338)
Mafube	Free State	0.354 (0.235-0.472)	0.192 (0.088-0.296)
Sol Plaatjie	Northern Cape	0.350 (0.312-0.388)	0.283 (0.249-0.317)
Tsantsabane	Northern Cape	0.347 (0.220-0.474)	0.343 (0.260-0.427)
Mafikeng	NorthWest	0.326 (0.274-0.377)	0.348 (0.293-0.403)
Senqu	Eastern Cape	0.325 (0.256-0.394)	0.121 (0.060-0.183)
Thembelihle	Northern Cape	0.324 (0.217-0.430)	0.388 (0.302-0.475)
Phokwane	Northern Cape	0.322 (0.249-0.395)	0.320 (0.247-0.392)
Emthanjeni	Northern Cape	0.319 (0.251-0.387)	0.199 (0.142-0.255)
Naledi	Free State	0.306 (0.186-0.426)	0.316 (0.205-0.426)
Matzikama	Western Cape	0.289 (0.221-0.357)	0.125 (0.061-0.189)
Tokologo	Free State	0.288 (0.192-0.384)	0.245 (0.141-0.348)
Nxuba	Eastern Cape	0.287 (0.158-0.416)	0.089 (0.000-0.186)
//Khara Hais	Northern Cape	0.285 (0.226-0.344)	0.381 (0.337-0.425)
Setsoto	Free State	0.284 (0.195-0.373)	0.245 (0.171-0.320)
Greater Taung	NorthWest	0.282 (0.193-0.371)	0.306 (0.217-0.395)
Joe Morolong	Northern Cape	0.279 (0.157-0.400)	0.187 (0.122-0.252)
Kopanong	Free State	0.274 (0.214-0.335)	0.178 (0.125-0.232)
Ubuntu	Northern Cape	0.273 (0.138-0.409)	0.113 (0.000-0.233)
Lephalale	Limpopo	0.271 (0.161-0.382)	0.252 (0.145-0.359)
Ba-Phalaborwa	Limpopo	0.265 (0.180-0.350)	0.215 (0.138-0.292)
Tsolwana	Eastern Cape	0.260 (0.138-0.383)	...
Kou-Kamma	Eastern Cape	0.259 (0.204-0.314)	0.218 (0.133-0.302)
Nketoana	Free State	0.259 (0.119-0.399)	0.074 (0.003-0.145)

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.

Eleven districts showed a proportion testing positive greater than 30%, and all 25 showed a proportion testing positive greater than 25%. Significant increases were observed in two of these 25 districts – Senqu in the Eastern Cape; and Matzikama in the Western Cape.

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 in Figure 9.

COVID-19 TESTING SUMMARY

SOUTH AFRICA

WEEK 40 2020

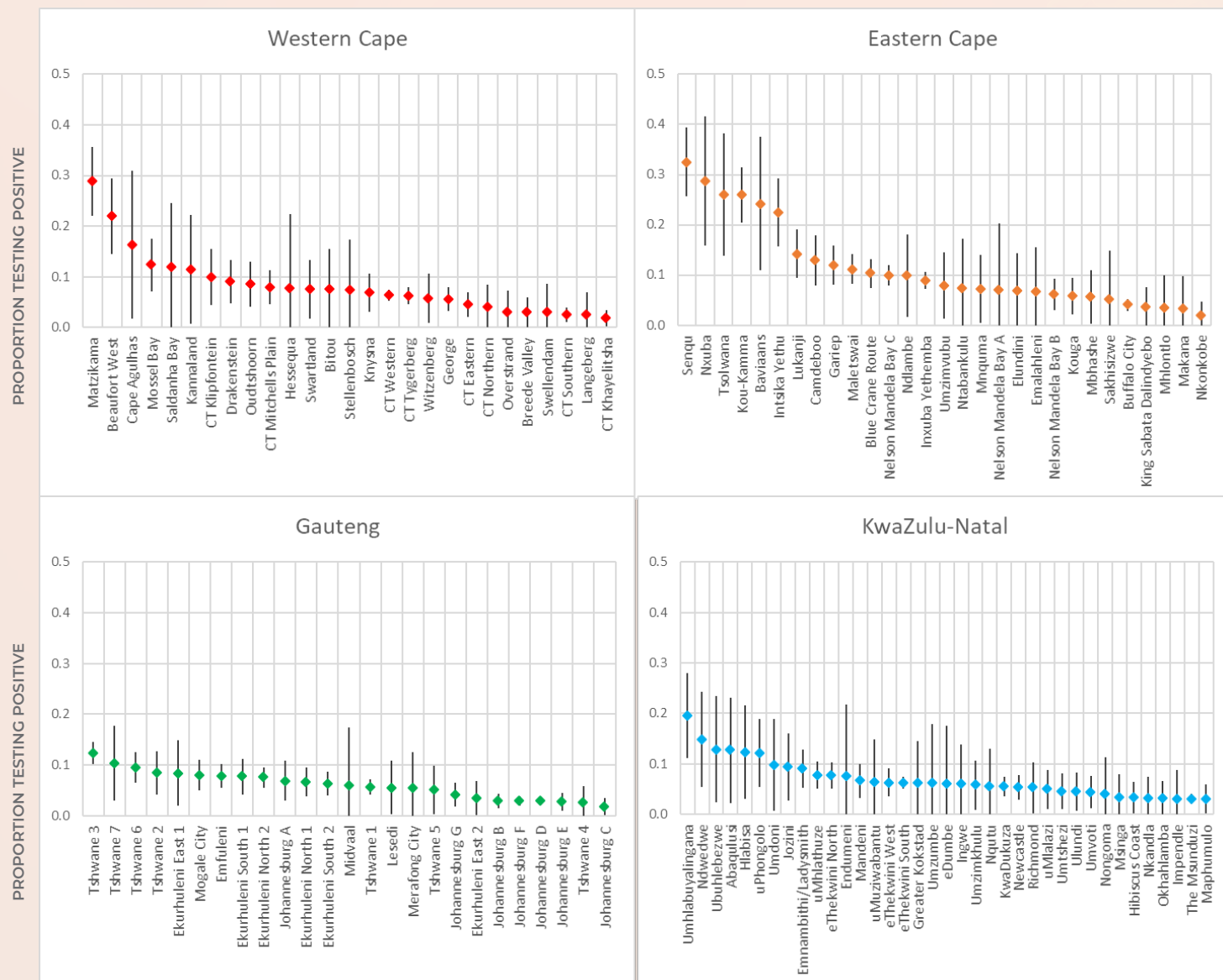
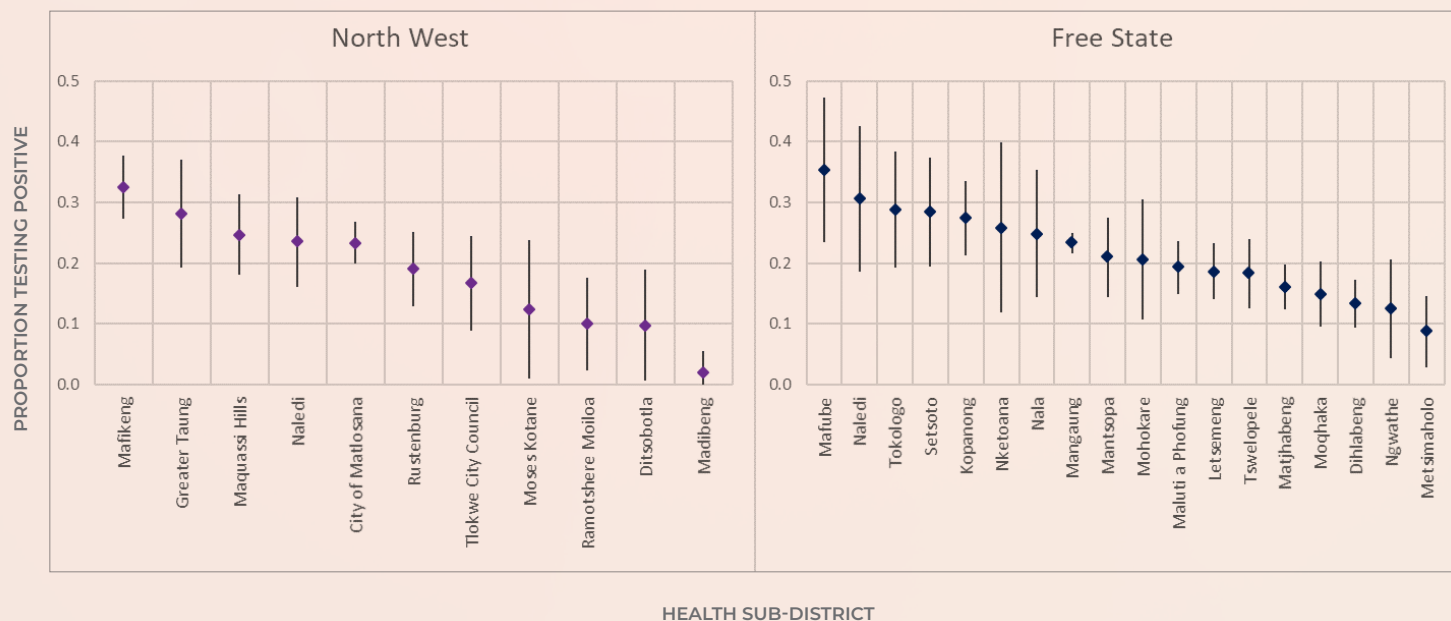


Figure 9. Proportions testing positive by health sub-districts in Western Cape, Eastern Cape, Gauteng, KwaZulu-Natal, North West, Free State, Limpopo, Mpumalanga and Northern Cape provinces based on public sector data for the week of 20-26 September 2020.

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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 27 September – 3 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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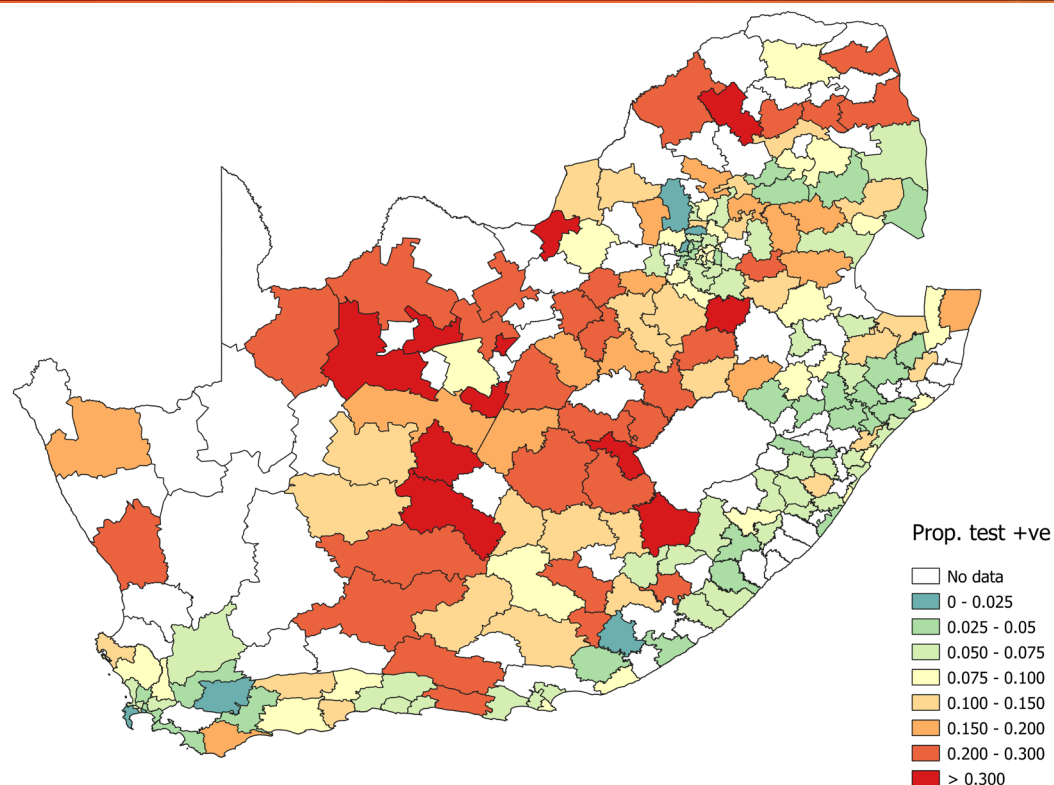


Figure 10. Proportion testing positive by health sub-district based on public sector data for the week of 27 September – 3 October 2020, South Africa. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

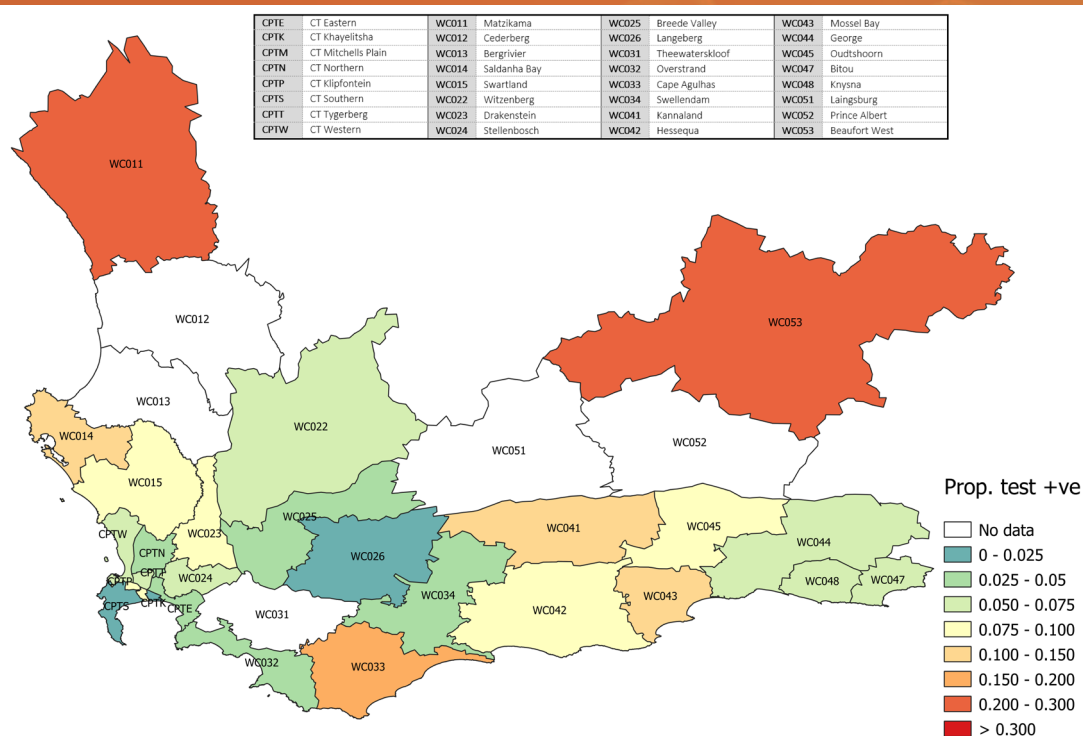


Figure 11. Health sub-districts in the Western Cape province with a high proportion testing positive based on public sector data for the week of 27 September – 3 October 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%

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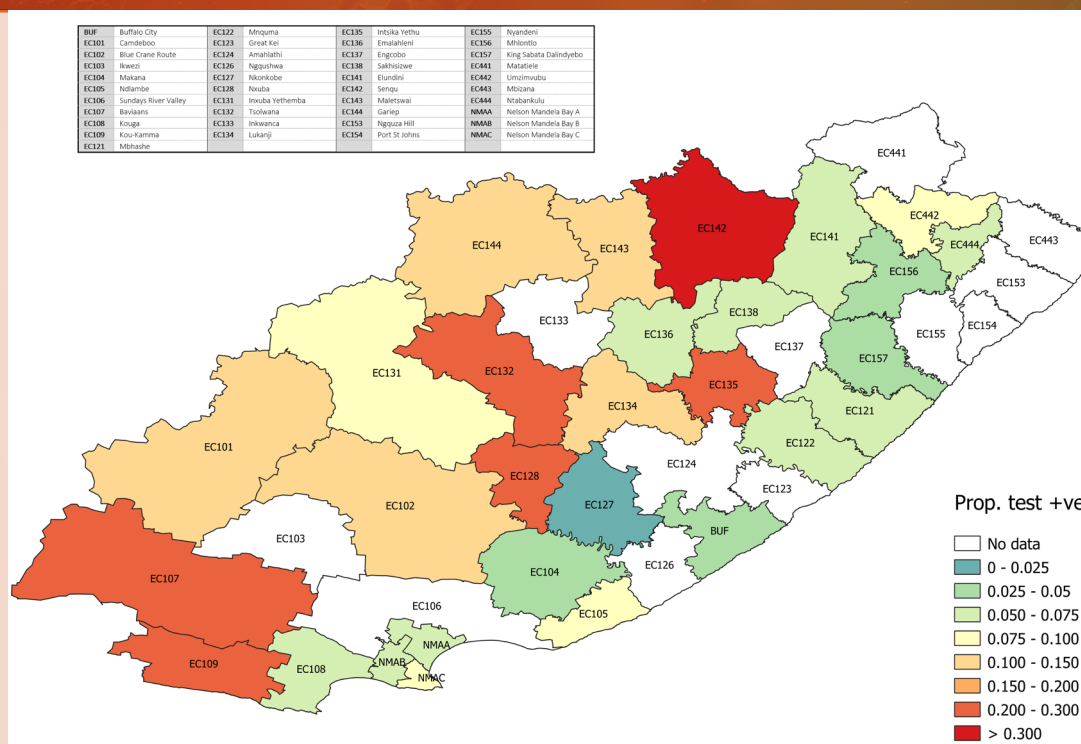


Figure 12. Health sub-districts in the Eastern Cape province with a high proportion testing positive based on public sector data for the week of 27 September – 3 October 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

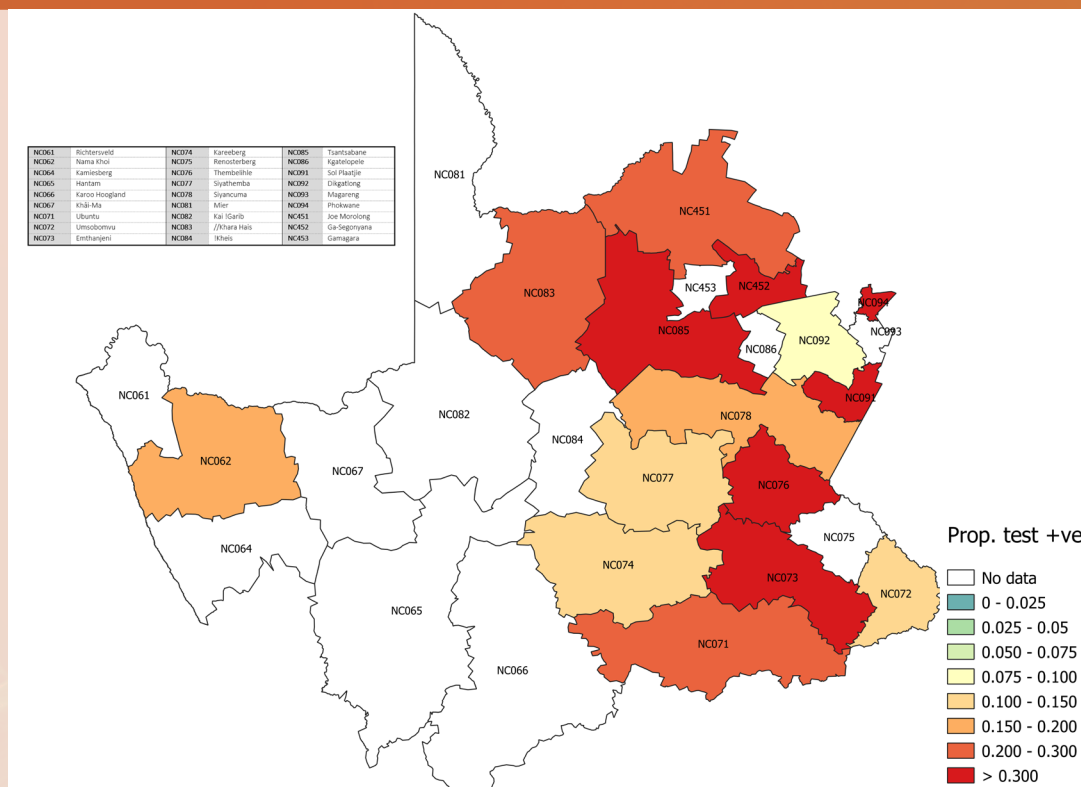


Figure 13. Health sub-districts in Northern Cape Province with a high proportion testing positive based on public sector data for the week of 27 September – 3 October 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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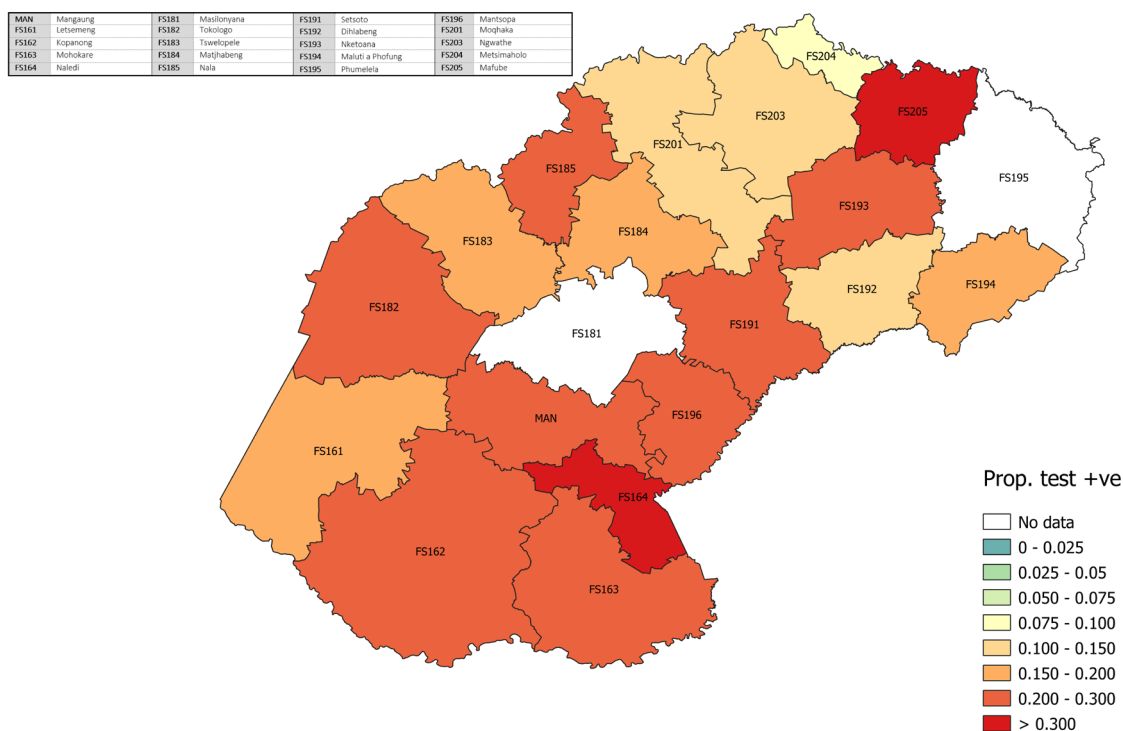


Figure 14. Health sub-districts in Free State Province with a high proportion testing positive based on public sector data for the week of 27 September – 3 October 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

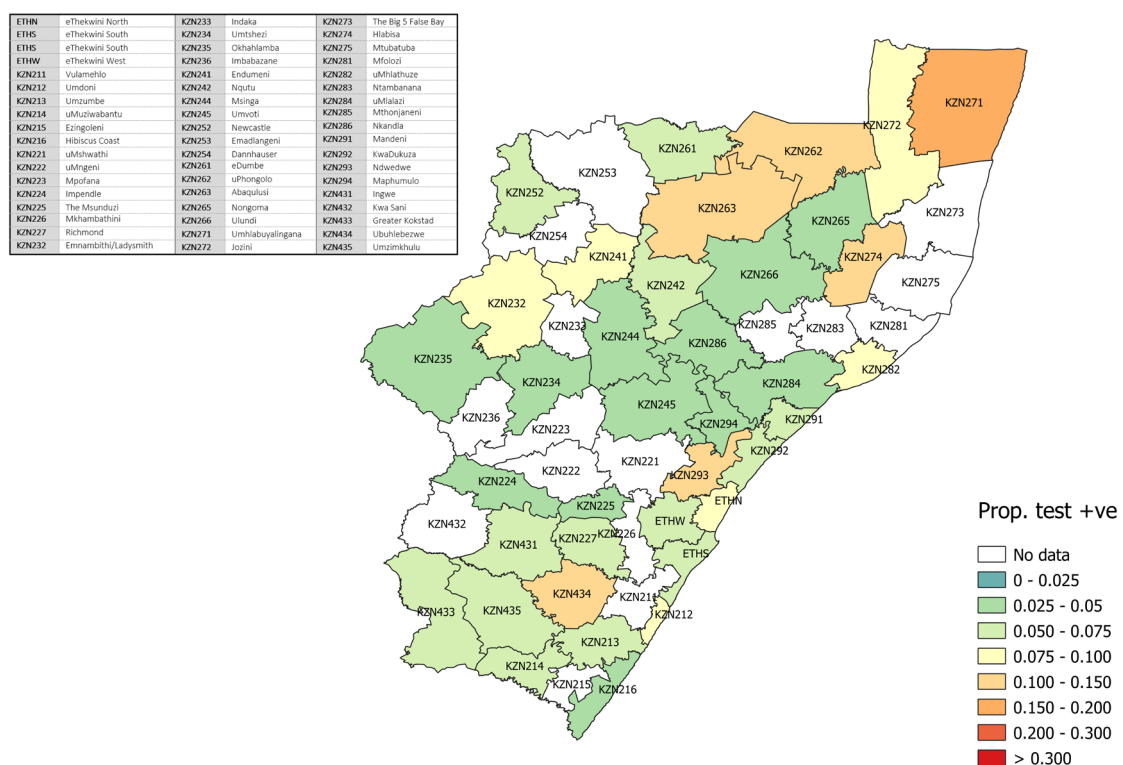


Figure 15. Health sub-districts in KwaZulu-Natal Province with a high proportion testing positive based on public sector data for the week of 27 September – 3 October 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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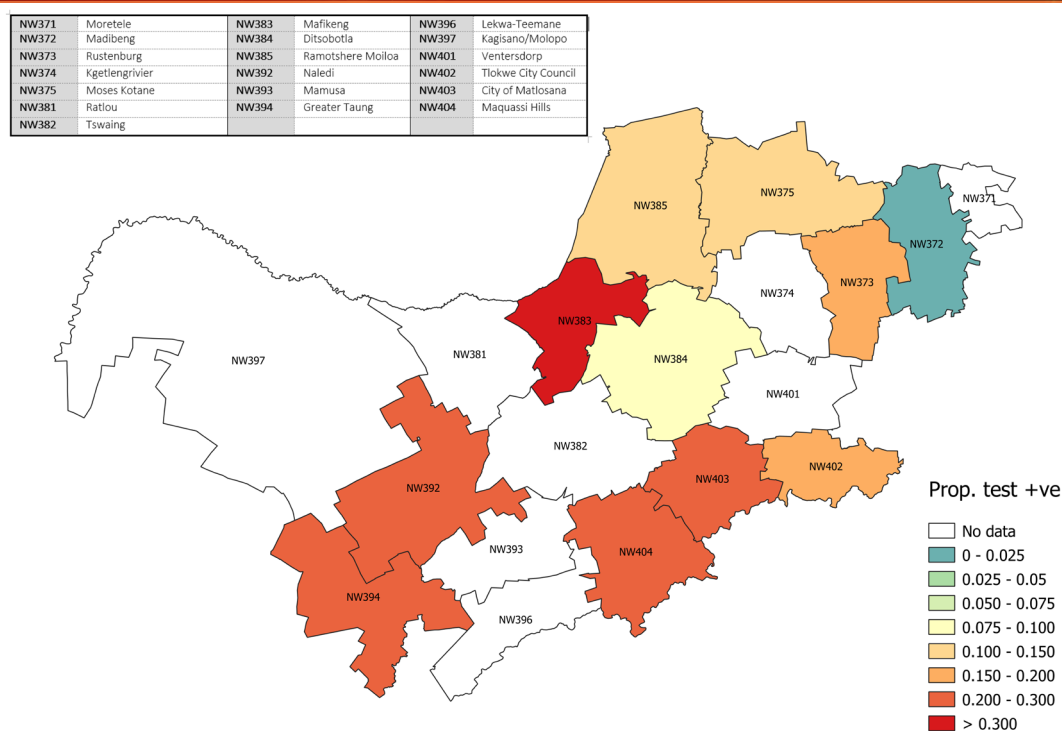


Figure 16. Health sub-districts in North West Province with a high proportion testing positive based on public sector data for the week of 27 September – 3 October 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

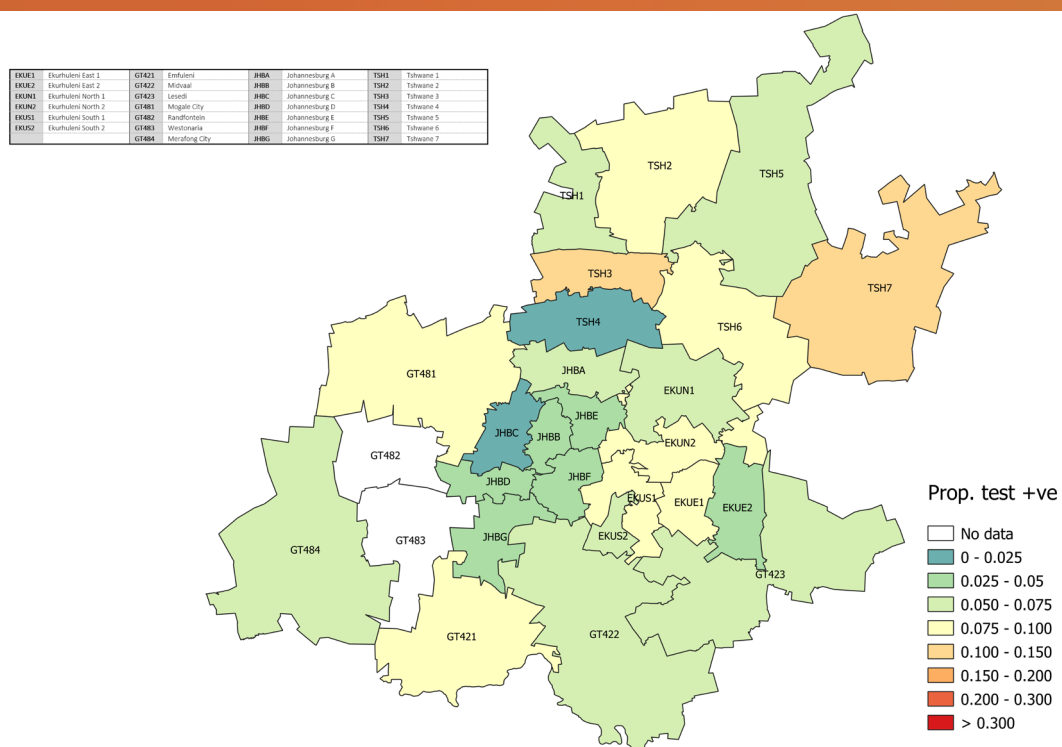


Figure 17. Health sub-districts in Gauteng Province with a high proportion testing positive based on public sector data for the week of 27 September – 3 October 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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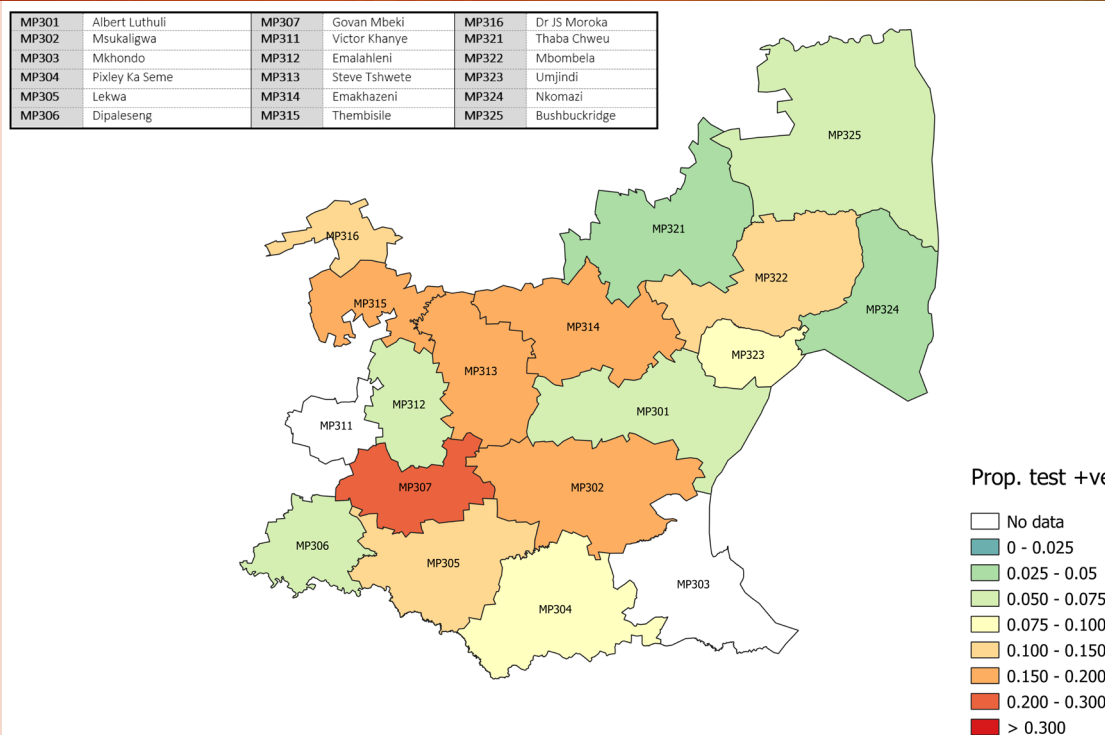


Figure 18. Health sub-districts in Mpumalanga Province with a high proportion testing positive based on public sector data for the week of 27 September – 3 October 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

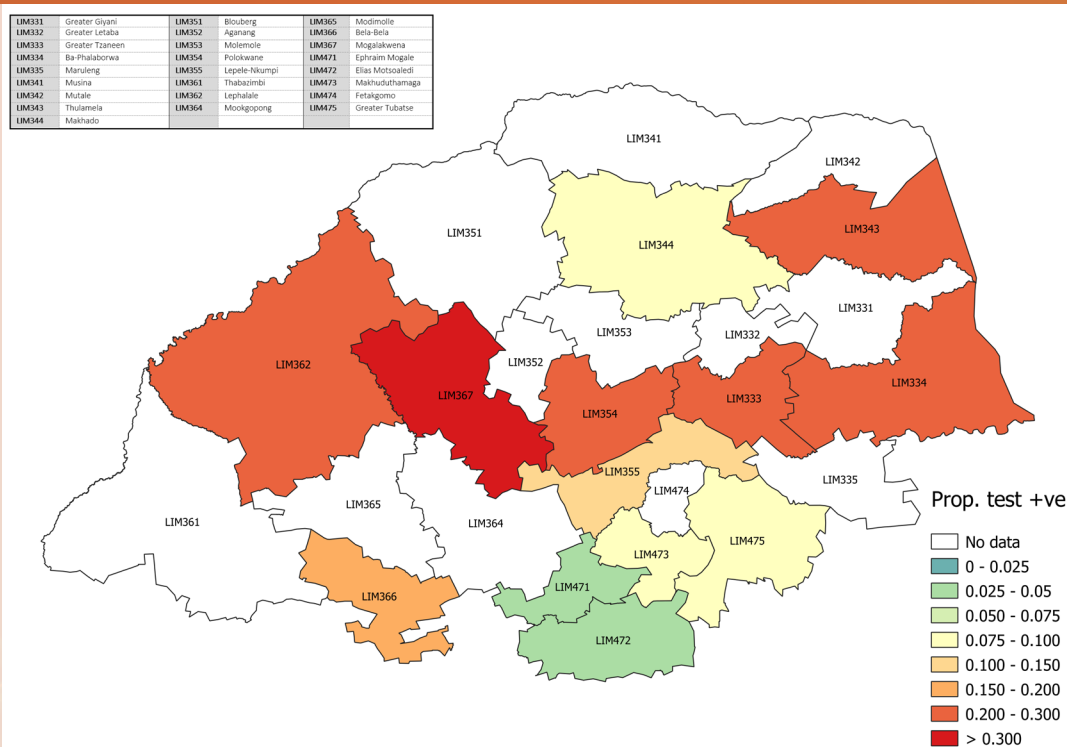


Figure 19. Health sub-districts in Limpopo Province with a high proportion testing positive based on public sector data for the week of 27 September – 3 October 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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Testing by patient admission status

In week 40, 27.2% of tests in the public sector were performed for hospitalised patients (Figure 20). The proportion of inpatient tests was highest in Northern Cape (45.3%) and KwaZulu-Natal (37.4%). Comparing week 40 to the previous week, the proportion of inpatient tests increased from 39.1% to 45.3% in the Northern Cape and from 34.9% to 37.4% in KwaZulu-

Natal. The percentage testing positive in week 40 remained lower among inpatients (8.5%) compared to outpatients (12.4%), with the percentage in both groups lower than the previous past week (Figure 21). In the public sector in week 40 the mean laboratory turnaround time continued to be lower for inpatients (1.6 days) compared to outpatients (2.0 days), and remained ≤ 2 days in both groups (Figure 22).

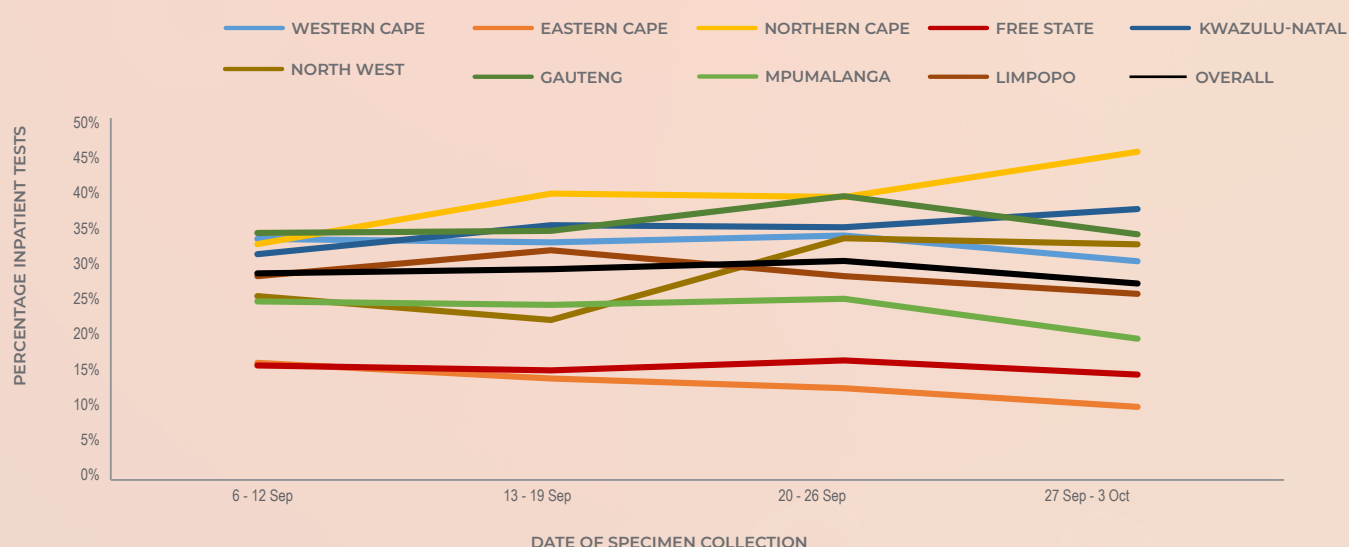


Figure 20. Percentage of inpatient tests performed in the public sector by province, 6 September – 3 October 2020

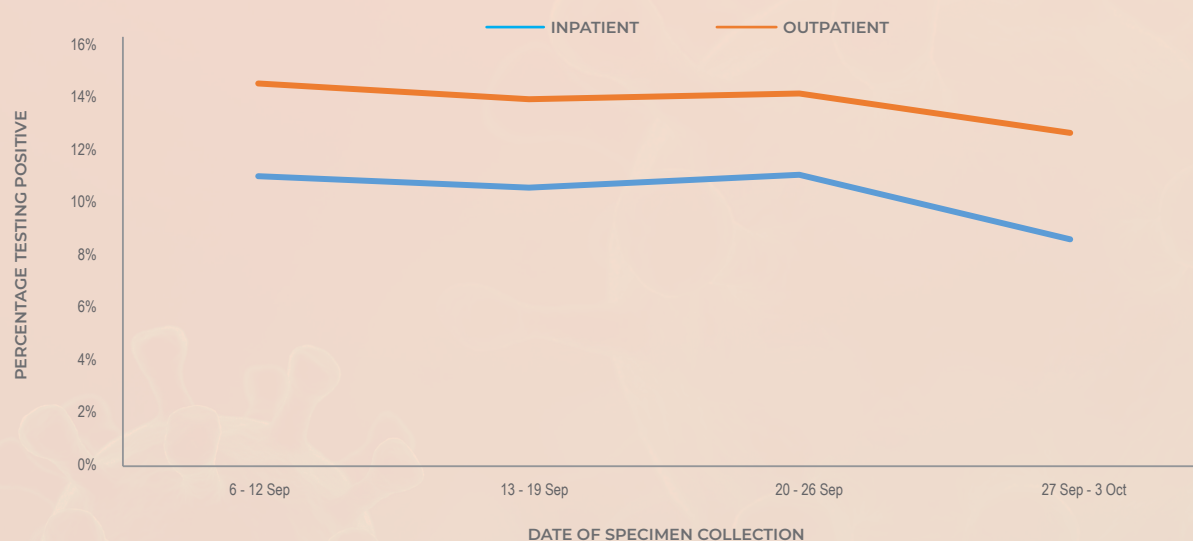


Figure 21. Percentage testing positive by patient admission status in the public sector, 6 September – 3 October 2020.

COVID-19 TESTING SUMMARY

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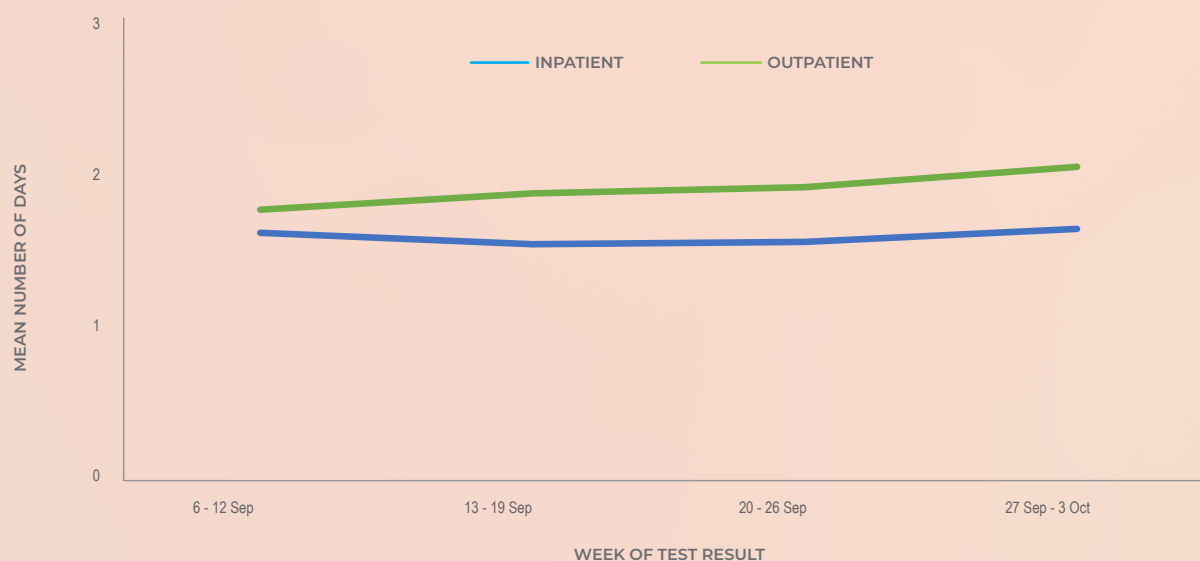


Figure 22. Mean number of days between date of specimen collection and date of test result, by patient admission status and date of test result in the public sector, South Africa, 6 September – 3 October 2020.

Testing by age and sex

The mean age of individuals tested in week 40 was 38.3 years, similar to the previous weeks. The mean age of individuals with a positive test in week 40 was 39.2 years, and did not differ between males (39.4 years) and females (39.0 years, $P=0.276$) (Table 7). The sex ratio

(the number of males per 100 females) of individuals with a positive test in week 40 was 73.0, similar to the previous week. For both sexes, the proportion testing positive in week 40 was lower than the previous two weeks across all age groups (Figure 23).

Table 7. Mean age and sex ratio of individuals tested, South Africa, 6 September – 3 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
37	6 September	38.4	39.3	40.2	40.3	81.2	68.5
38	13 September	37.8	38.4	39.1	39.1	81.8	73.7
39	20 September	37.5	38.3	39.2	40.0	82.4	72.2
40	27 September	38.2	38.4	39.4	39.0	88.5	73.0

COVID-19 TESTING SUMMARY

SOUTH AFRICA WEEK 40 2020

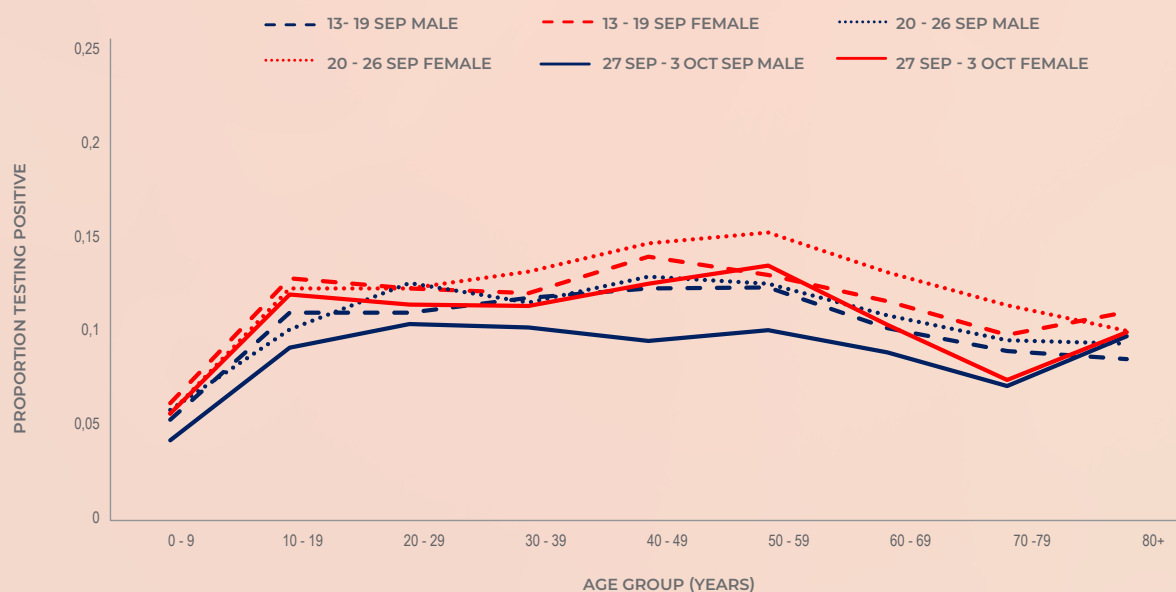


Figure 23. Weekly proportion testing positive by age group and sex, South Africa, 13 September – 3 October 2020.

From week 37 to week 40, the percentage testing positive decreased 1.5% in males (from 10.5% to 9.0%) and 1.5% in females (from 12.5% to 11.0%) (Table 8). In week 40 the percentage testing positive was higher

in females compared to males in the 0-19 years ($P=0.001$), 20-39 years ($P=0.001$), 40-59 years ($P<0.001$) and 60-69 years ($P=0.036$) age groups, and did not differ in those older than 70 years.

Table 8. Percentage testing positive by sex and week, South Africa, 6 September – 3 October 2020.

Age (years)	30 Aug-5 Sep		6-12 Sep		13-19 Sep		20-26 Sep	
	Male	Female	Male	Female	Male	Female	Male	Female
0-19	7.4%	10.5%	8.2%	10.1%	7.9%	9.5%	6.7%	9.2%
20-39	11.3%	12.2%	11.2%	11.9%	11.7%	12.5%	10.1%	11.2%
40-59	11.8%	14.7%	12.1%	13.3%	12.5%	14.6%	9.5%	12.7%
60-69	10.6%	11.6%	10.0%	11.4%	10.6%	12.9%	8.7%	10.1%
70+	9.1%	10.4%	8.7%	10.1%	9.3%	10.7%	7.7%	8.1%
Total	10.5%	12.5%	10.6%	11.8%	10.9%	12.4%	9.0%	11.0%

COVID-19 TESTING SUMMARY

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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.
- 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

In week 40 testing volumes increased from week 39, but were lower than week 38. As has been observed throughout the first wave of the pandemic, Gauteng (30.8%) performed the largest number of tests in week 40, followed by KwaZulu-Natal (16.0%) and Western Cape (14.7%) provinces. Free State (340 per 100,000 persons) and Northern Cape (320 per 100,000 persons) provinces continued to have the highest testing rates in week 40. 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. Overall laboratory turnaround times in week 40 were 2.2 days; 2.5 days in the private sector and 1.8 days in the public sector.

The percentage testing positive has been decreasing weekly since the peak of 31.4% in week 29. In week 40 the percentage testing positive was 10.0%, the lowest since week 23 (10.1%). As for the previous week, percentages testing positive were $\geq 20\%$ in Northern Cape and Free State, between 10-19% in North West, Mpumalanga and Limpopo, and $<10\%$ in Gauteng, KwaZulu-Natal, Western Cape and Eastern Cape. Compared to the previous week, the percentage testing positive decreased in Northern Cape, Free State, KwaZulu-Natal, North West, Gauteng, Mpumalanga and Limpopo, and did not change in Western Cape and Eastern Cape provinces. Of the 25 sub-districts with the highest proportion testing positive in the past week, 9 were in the Northern Cape, 9 in the Free State, and 4 in the Eastern Cape province.