

COVID-19 TESTING SUMMARY



NATIONAL INSTITUTE FOR
COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 46 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 14 November 2020 (Week 46 of 2020).

HIGHLIGHTS

- In the period 1 March 2020 through 14 November 2020, 4,354,676 laboratory tests for SARS-CoV-2 have been conducted nationally
- Weekly testing volumes have decreased since a peak in week 28. The number of tests performed in week 46 were similar to the previous few weeks
- Western Cape (275 per 100,000 persons), Eastern Cape (248 per 100,000 persons), Northern Cape (233 per 100,000 persons) and Free State (230 per 100,000 persons) provinces had the highest testing rates in week 46
- Percentage testing positive has decreased since the peak of 31.2% in week 29. In week 46 the percentage testing positive was 11.0%, slightly higher than the previous six weeks
- Percentage testing positive was highest in the Eastern Cape (31.9%) and Western Cape (12.2%). Percentages testing positive were <10% in Northern Cape, Free State, North West, Gauteng, KwaZulu-Natal, Mpumalanga and Limpopo.
- In week 46, compared to the previous week, the percentage testing positive increased in the Eastern Cape and Western Cape, decreased in Northern Cape, Free State, and Mpumalanga, and did not change in KwaZulu-Natal, North West, Gauteng and Limpopo
- Mean laboratory turnaround time in week 46 was 1.4 days; 1.9 days in the public sector and 1.0 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 14 November 2020 (week 46).

Testing volumes and proportion testing positive

From 1 March through 14 November 2020, 4,354,676 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=272,592), but have subsequently decreased. In week 46, 103,231 tests were performed, similar to the number of tests performed in the previous few weeks. 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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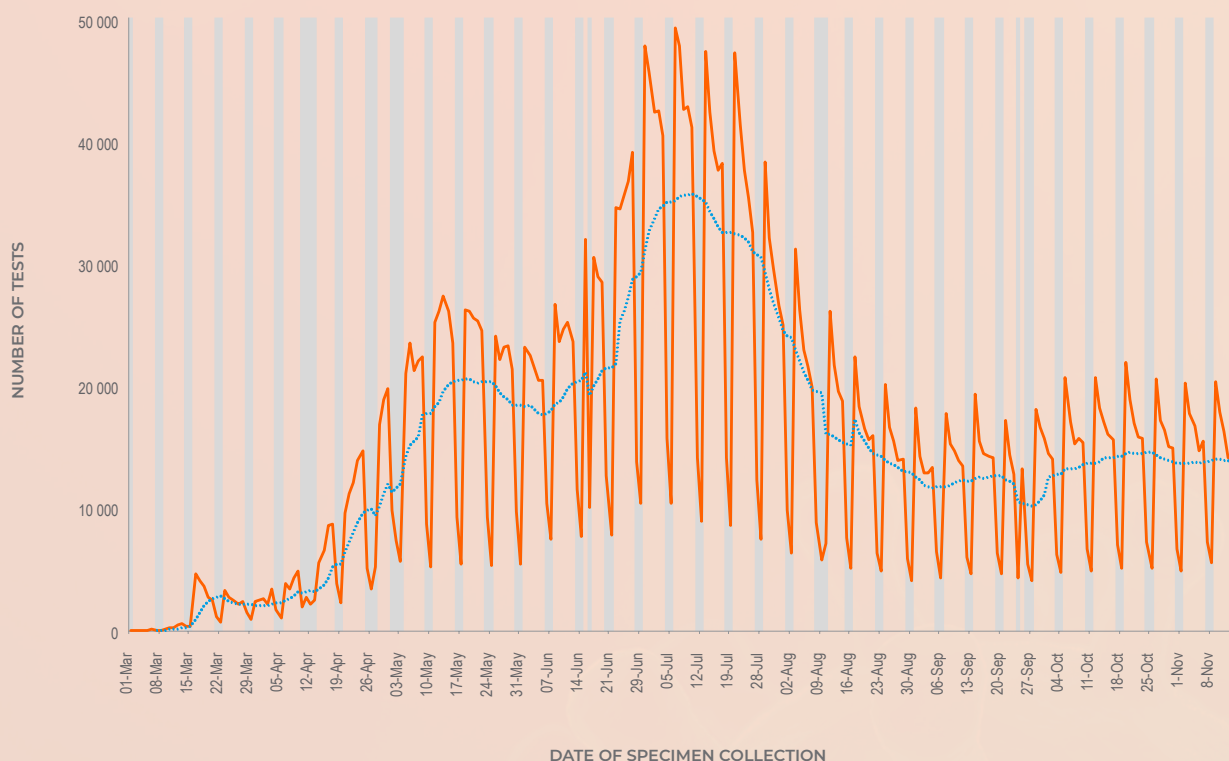


Figure 1. Number of laboratory tests conducted by date of specimen collection, South Africa, 1 March – 14 November 2020. Blue dotted line shows the 7-day moving average of the number of tests conducted. Grey bars highlight weekend days and public holidays.

The overall percentage testing positive from week 10 through 46 was 16.6% (Table 1). The percentage testing positive increased week on week from week 18 to a peak of 31.2% in week 29. Since week 29, there has been a 20.2% decrease in the percentage testing positive to 11.0% in week 46. The percentage testing positive in week 46 of 11.0% was slightly higher than observed in week 45 (10.3%, $P < 0.001$) (Figure 2).

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Table 1. Weekly number of tests conducted and positive tests, South Africa, 1 March – 14 November 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	21317 (0.5)	825	3.9
13	22-Mar	17039 (0.4)	470	2.8
14	29-Mar	17382 (0.4)	399	2.3
15	05-Apr	24590 (0.6)	568	2.3
16	12-Apr	41857 (1.0)	1047	2.5
17	19-Apr	75869 (1.7)	1924	2.5
18	26-Apr	89477 (2.1)	2886	3.2
19	03-May	136862 (3.1)	5532	4.0
20	10-May	156993 (3.6)	7416	4.7
21	17-May	156371 (3.6)	10485	6.7
22	24-May	141897 (3.3)	11672	8.2
23	31-May	136124 (3.1)	13453	9.9
24	07-Jun	156768 (3.6)	20448	13.0
25	14-Jun	164979 (3.8)	29831	18.1
26	21-Jun	222079 (5.1)	50377	22.7
27	28-Jun	268910 (6.2)	69063	25.7
28	05-Jul	272592 (6.3)	79513	29.2
29	12-Jul	250197 (5.7)	78143	31.2
30	19-Jul	236130 (5.4)	72277	30.6
31	26-Jul	185516 (4.3)	53496	28.8
32	02-Aug	150398 (3.5)	36807	24.5
33	09-Aug	117333 (2.7)	23417	20.0
34	16-Aug	110112 (2.5)	19080	17.3
35	23-Aug	99947 (2.3)	14623	14.6
36	30-Aug	90405 (2.1)	11402	12.6
37	06-Sep	94092 (2.2)	10790	11.5
38	13-Sep	97533 (2.2)	10892	11.2
39	20-Sep	79194 (1.8)	9175	11.6
40	27-Sep	98163 (2.3)	10018	10.2
41	04-Oct	105055 (2.4)	10680	10.2
42	11-Oct	109365 (2.5)	11014	10.1
43	18-Oct	111939 (2.6)	11035	9.9
44	25-Oct	105604 (2.4)	10401	9.8
45	01-Nov	106617 (2.4)	10939	10.3
46	08-Nov	103231 (2.4)	11312	11.0
Total		4354676 (100.0)	721507	16.6

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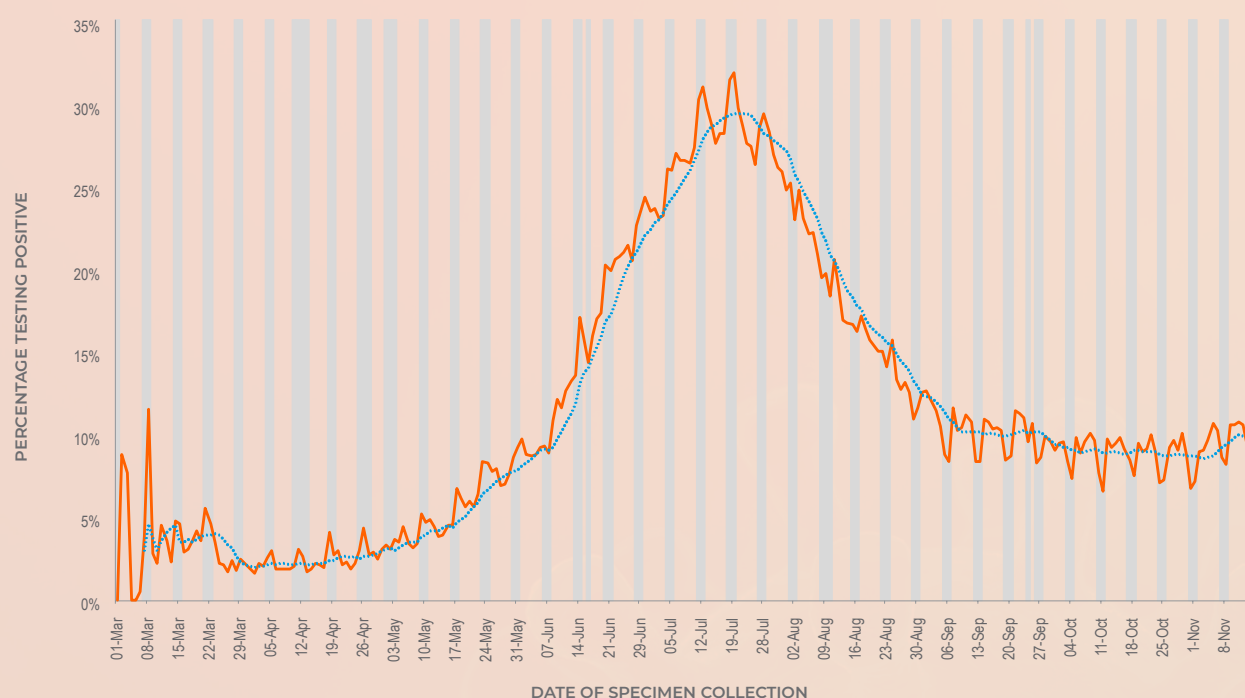


Figure 2. Percentage of laboratory tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March – 14 November 2020. Blue dotted line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

Testing in private and public sectors

From 1 March through 14 November, 1,984,082 laboratory tests were conducted in public sector laboratories, with 15.5% testing positive. Over this same period, private sector laboratories conducted 2,370,594 tests, with 17.5% testing positive (Table 2). Overall the public sector has conducted 45.6% of tests and accounted for 42.5% 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 45 to week 46, the percentage testing positive increased from 11.9% to 12.8% ($P < 0.001$) in the public sector and increased slightly from 9.0% to 9.6% ($P < 0.001$) in the private sector. In week 46 the percentage testing positive

continued to be higher in the public sector (12.8%) compared to the private sector (9.6%) ($P < 0.001$), as has been observed since week 34.

The mean turnaround time for tests conducted in week 46 was 1.4 days. Turnaround time was unchanged in the public sector (1.9 days) and decreased in the private sector (1.0 days) (Figure 3). Turnaround times for public sector tests were >2 days in Mpumalanga (2.8 days), Eastern Cape (2.7 days) and KwaZulu-Natal (2.1 days) (Figure 4). Turnaround times in the past week increased in Mpumalanga (2.0 to 2.8 days). Twenty-four of the 28 (85.7%) 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 – 14 November 2020

Week number	Week beginning	Public sector		Private sector		Public sector percentage of		Ratio of PTP ^a
		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	350	12 (3.4)	1979	76 (3.8)	15.0	13.6	0.893
12	15-Mar	1344	51 (3.8)	19973	774 (3.9)	6.3	6.2	0.979
13	22-Mar	3357	124 (3.7)	13682	346 (2.5)	19.7	26.4	1.461
14	29-Mar	5608	158 (2.8)	11774	241 (2.0)	32.3	39.6	1.376
15	05-Apr	11320	319 (2.8)	13270	249 (1.9)	46.0	56.2	1.502
16	12-Apr	23753	606 (2.6)	18104	441 (2.4)	56.7	57.9	1.047
17	19-Apr	54130	1468 (2.7)	21739	456 (2.1)	71.3	76.3	1.293
18	26-Apr	66178	2276 (3.4)	23299	610 (2.6)	74.0	78.9	1.314
19	03-May	92280	4225 (4.6)	44582	1307 (2.9)	67.4	76.4	1.562
20	10-May	104907	5075 (4.8)	52086	2341 (4.5)	66.8	68.4	1.076
21	17-May	95409	6583 (6.9)	60962	3902 (6.4)	61.0	62.8	1.078
22	24-May	74212	5922 (8.0)	67685	5750 (8.5)	52.3	50.7	0.939
23	31-May	60207	6065 (10.1)	75917	7388 (9.7)	44.2	45.1	1.035
24	07-Jun	59942	7312 (12.2)	96826	13136 (13.6)	38.2	35.8	0.899
25	14-Jun	55948	11001 (19.7)	109031	18830 (17.3)	33.9	36.9	1.139
26	21-Jun	82549	18768 (22.7)	139530	31609 (22.7)	37.2	37.3	1.004
27	28-Jun	97230	25031 (25.7)	171680	44032 (25.6)	36.2	36.2	1.004
28	05-Jul	107949	30198 (28.0)	164643	49315 (30.0)	39.6	38.0	0.934
29	12-Jul	101259	29316 (29.0)	148938	48827 (32.8)	40.5	37.5	0.883
30	19-Jul	96170	28334 (29.5)	139960	43943 (31.4)	40.7	39.2	0.938
31	26-Jul	73896	21277 (28.8)	111620	32219 (28.9)	39.8	39.8	0.998
32	02-Aug	64063	15708 (24.5)	86335	21099 (24.4)	42.6	42.7	1.003
33	09-Aug	53650	10382 (19.4)	63683	13035 (20.5)	45.7	44.3	0.945
34	16-Aug	50889	8911 (17.5)	59223	10169 (17.2)	46.2	46.7	1.020
35	23-Aug	45472	7209 (15.9)	54475	7414 (13.6)	45.5	49.3	1.165
36	30-Aug	41051	5596 (13.6)	49354	5806 (11.8)	45.4	49.1	1.159
37	06-Sep	46370	5963 (12.9)	47722	4827 (10.1)	49.3	55.3	1.271
38	13-Sep	49086	6085 (12.4)	48447	4807 (9.9)	50.3	55.9	1.249
39	20-Sep	40924	5120 (12.5)	38270	4055 (10.6)	51.7	55.8	1.181
40	27-Sep	44260	5203 (11.8)	53903	4815 (8.9)	45.1	51.9	1.316
41	04-Oct	46361	5197 (11.2)	58694	5483 (9.3)	44.1	48.7	1.200
42	11-Oct	48212	5296 (11.0)	61153	5718 (9.4)	44.1	48.1	1.175
43	18-Oct	50182	5615 (11.2)	61757	5420 (8.8)	44.8	50.9	1.275
44	25-Oct	45524	5316 (11.7)	60080	5085 (8.5)	43.1	51.1	1.380
45	01-Nov	46518	5524 (11.9)	60099	5415 (9.0)	43.6	50.5	1.318
46	08-Nov	43271	5540 (12.8)	59960	5772 (9.6)	41.9	49.0	1.330
Total		1984082	306791 (15.5)	2370594	414716 (17.5)	45.6	42.5	0.884

^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)

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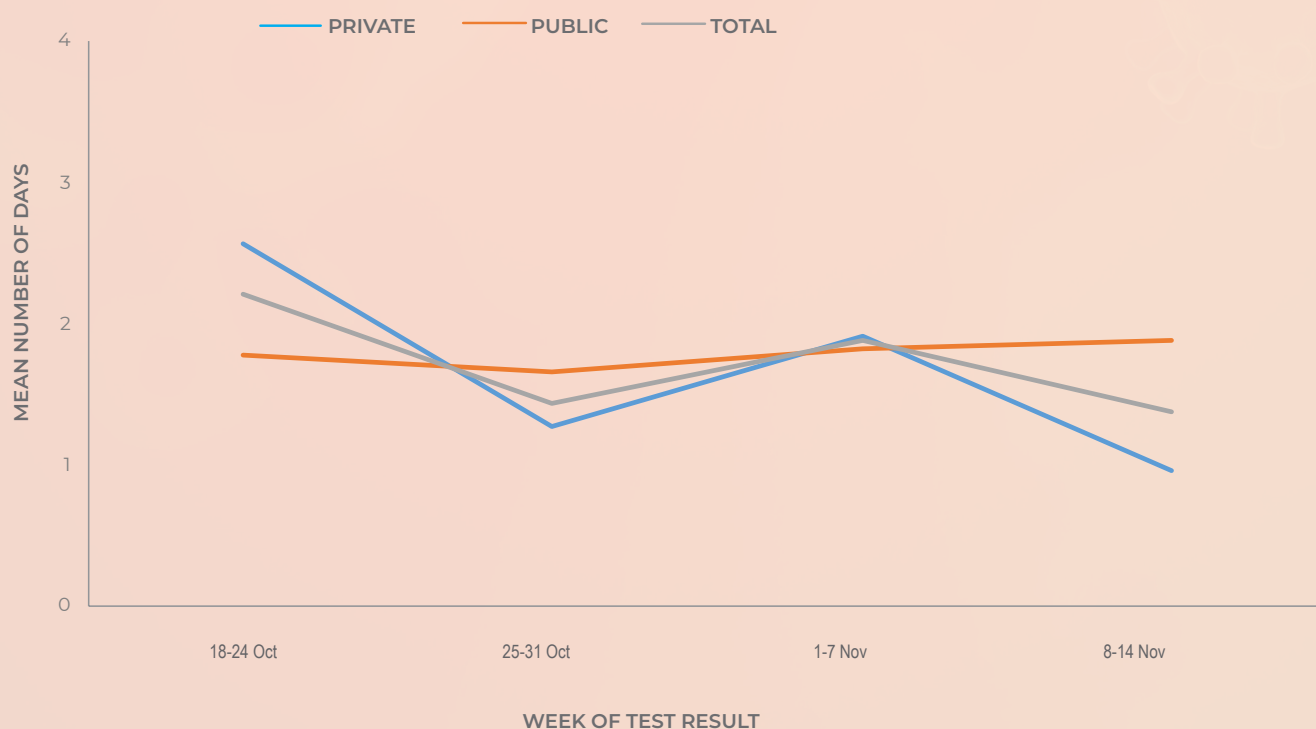


Figure 3. Mean number of days between date of specimen collection and date of test result, by week of test result, South Africa, 18 October – 14 November 2020

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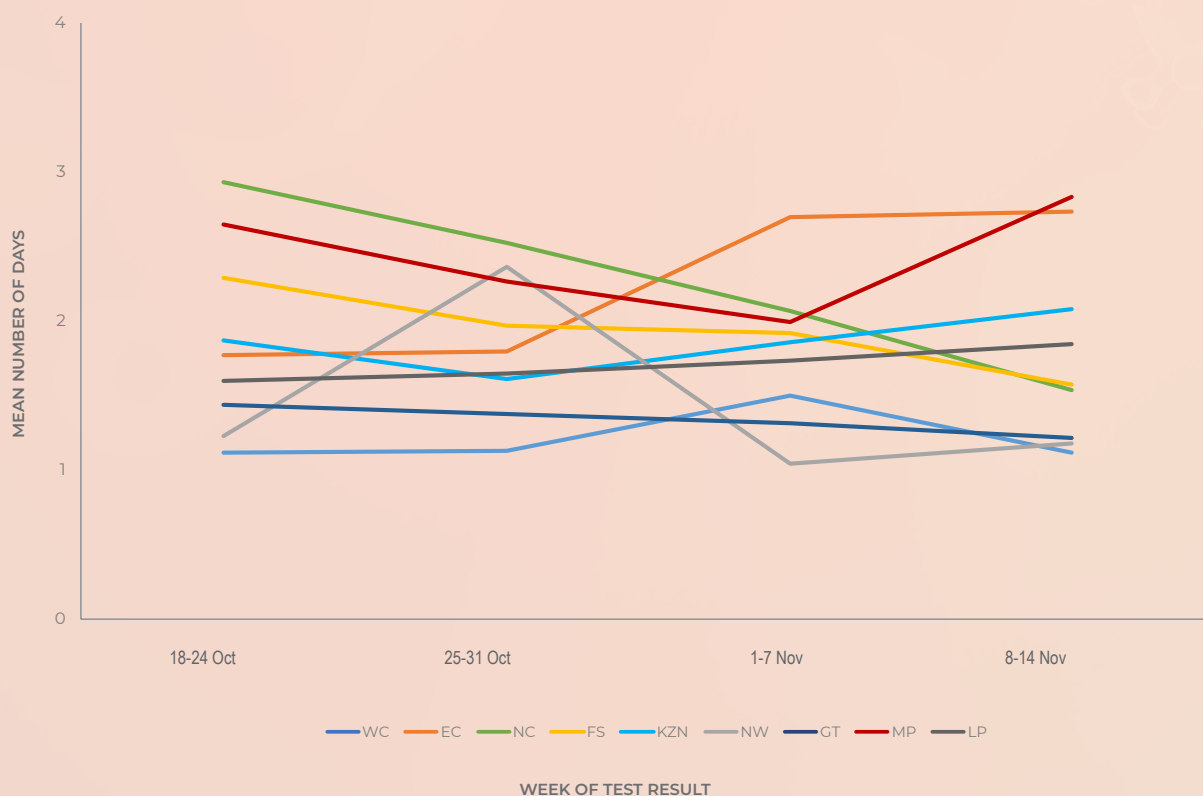


Figure 4. Mean number of days between date of specimen collection and date of test result, by week of test result and province, public sector, South Africa, 18 October – 14 November 2020. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal; GT, Gauteng; NC, Northern Cape; NW, North West; MP, Mpumalanga; LP, Limpopo

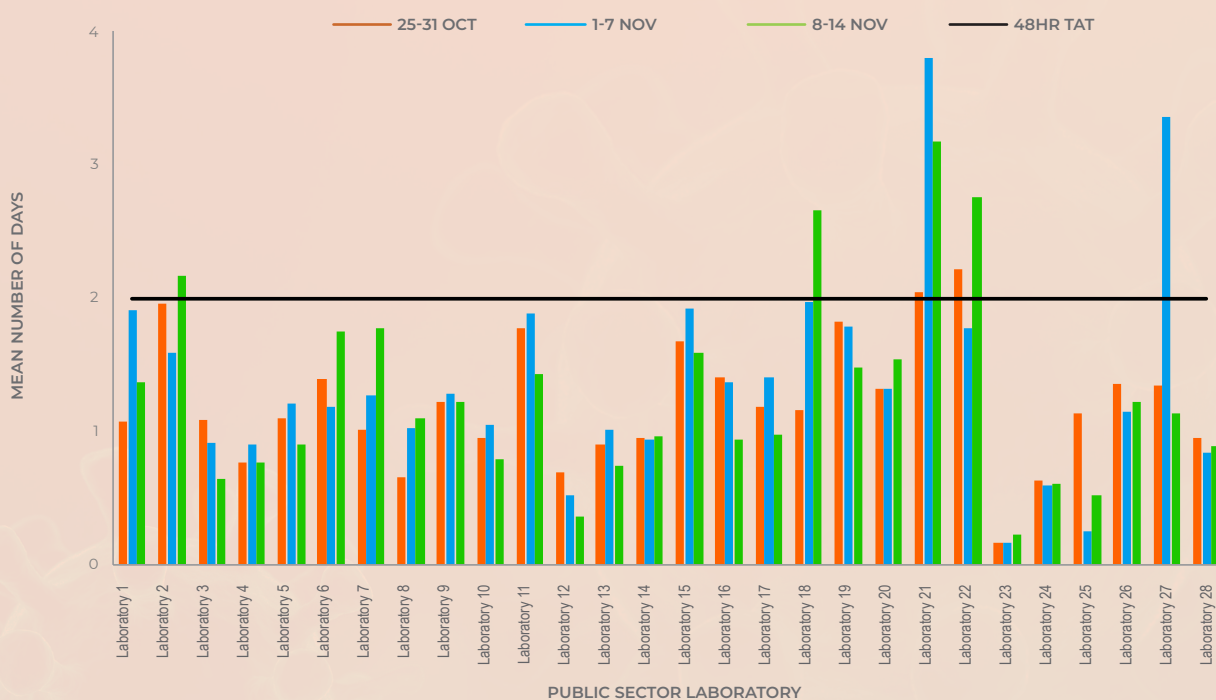


Figure 5. Mean number of days between date of specimen collection and date of test result, by public sector laboratory, 25 October – 14 November 2020. The horizontal black line indicates 48-hour turnaround time (TAT).

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Testing by province

Gauteng (29.7%) performed the largest number of tests in week 46, followed by Western Cape (18.6%), Eastern Cape (16.1%) and KwaZulu-Natal (15.1%) provinces (Table 3). Western Cape (275 per 100,000 persons), Eastern Cape (248 per 100,000 persons), Northern Cape (233 per 100,000 persons) and Free State (230 per 100,000 persons) provinces had the highest testing rates in week 46 (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. Testing rates increased in the Eastern Cape and Western Cape over recent weeks, and continued to decrease in Northern Cape and Free State.

The percentage testing positive in week 46 continued to be highest in the Eastern Cape (31.9%), followed by the Western Cape (12.2%). Percentages testing positive were <10% in Northern Cape, Free State, KwaZulu-Natal, North West, Gauteng, Mpumalanga and Limpopo in week 46 (Figure 7). Compared to the previous week, the percentage testing positive increased by 3.3% in the Western Cape (8.9% to 12.2%, $P<0.001$) and 2.7% in the Eastern Cape (29.2% to 31.9%, $P<0.001$) in week 46. The percentage testing positive in week 46 compared to week 45 decreased in Northern Cape ($P=0.036$), Free State ($P<0.001$) and Mpumalanga ($P=0.004$), and did not change in KwaZulu-Natal ($P=0.123$), North West ($P=0.626$), Gauteng ($P=0.206$) and Limpopo ($P=0.705$). The percentage testing positive was higher than the national average, not weighted for population size, in the Eastern Cape, and Western Cape provinces (Figure 7).

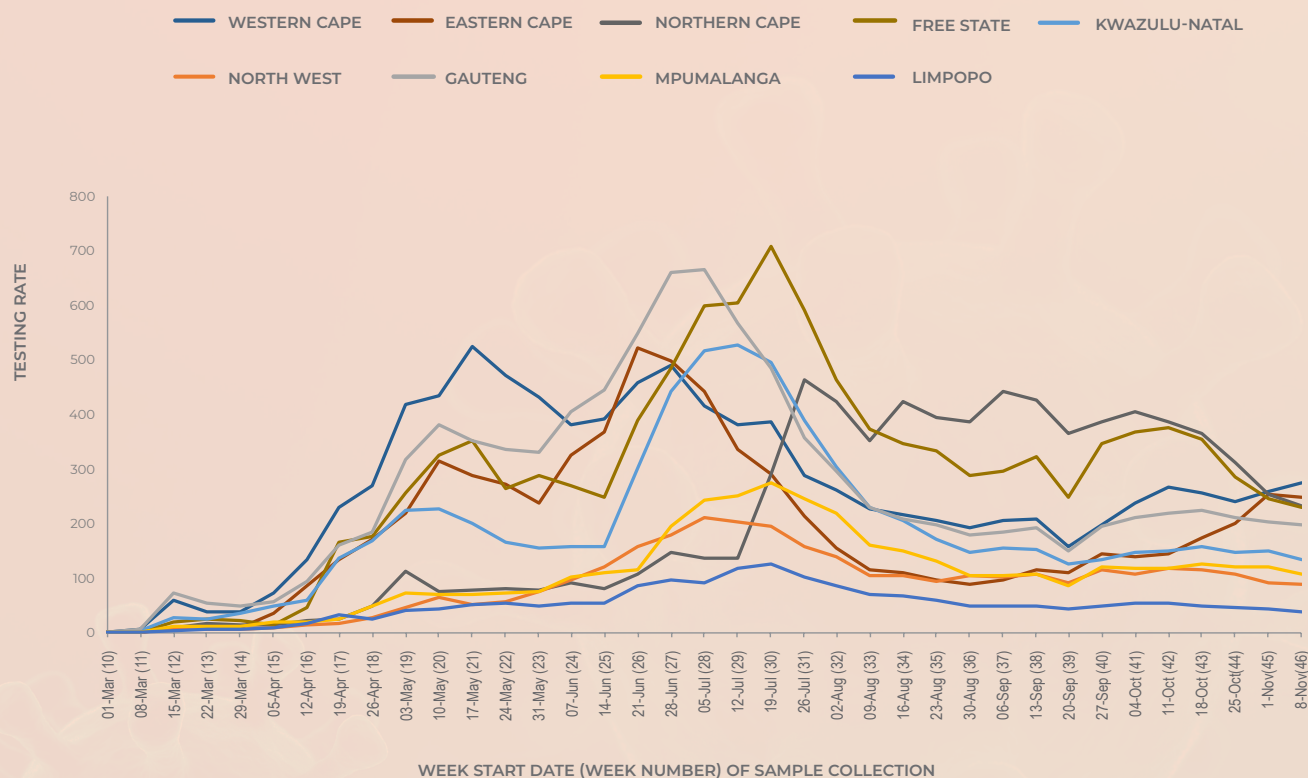


Figure 6. Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 1 March – 14 November 2020

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Table 3. Weekly number of tests performed and positive tests, by province, South Africa, 25 October – 14 November 2020

Province	Population ^a	25-31 Oct		1-7 Nov		8-14 Nov		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	7005741	16930	1349 (8.0)	18169	1616 (8.9)	19235	2349 (12.2)	275	3.3%
Eastern Cape	6734001	13490	3325 (24.6)	17040	4972 (29.2)	16670	5321 (31.9)	248	2.7%
Northern Cape	1292786	4032	600 (14.9)	3271	374 (11.4)	3009	295 (9.8)	233	-1.6%
Free State	2928903	8371	1246 (14.9)	7240	769 (10.6)	6747	424 (6.3)	230	-4.3%
KwaZulu-Natal	11531628	16903	878 (5.2)	17336	805 (4.6)	15614	782 (5.0)	135	0.4%
North West	4108816	4378	556 (12.7)	3731	372 (10.0)	3695	356 (9.6)	90	-0.3%
Gauteng	15488137	32927	1609 (4.9)	31473	1297 (4.1)	30700	1204 (3.9)	198	-0.2%
Mpumalanga	4679786	5708	499 (8.7)	5670	487 (8.6)	5040	358 (7.1)	108	-1.5%
Limpopo	5852553	2663	336 (12.6)	2504	244 (9.7)	2261	213 (9.4)	39	-0.3%
Unknown		202	3 (1.5)	183	3 (1.6)	260	10 (3.8)		2.2%
Total	59622350	105604	10401 (9.8)	106617	10939 (10.3)	103231	11312 (11.0)	173	0.7%

^a 2020 Mid-year population Statistics SA

^b Current week compared to previous week

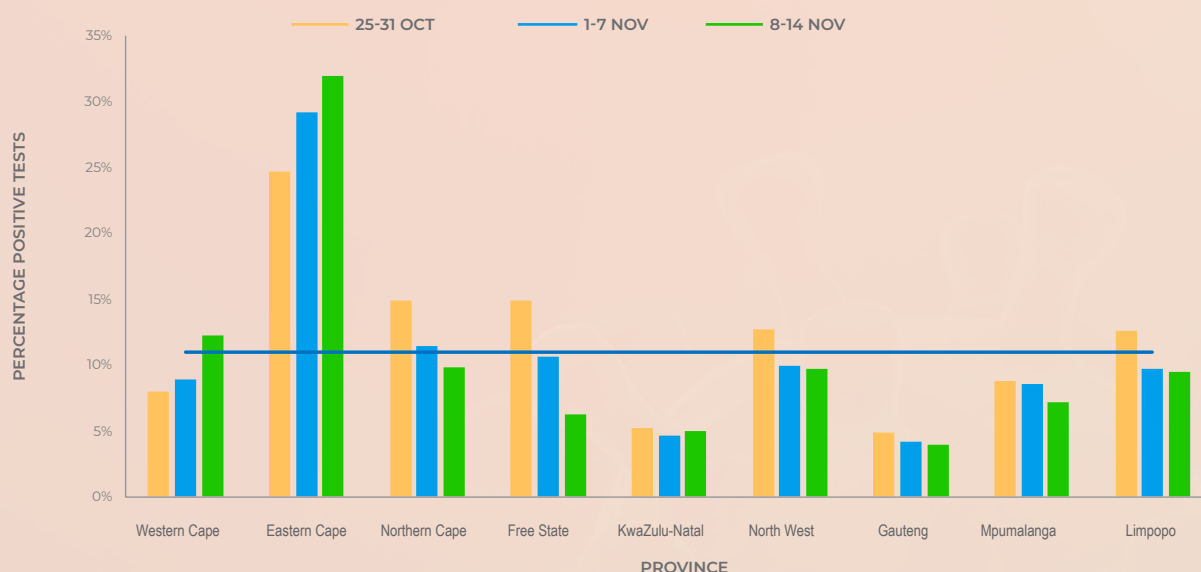


Figure 7. Weekly percentage testing positive, by province, South Africa, 25 October – 14 November 2020. The horizontal blue line shows the national mean for week 46, beginning 8 November 2020.

Testing in the public sector

In the public sector, the percentage testing positive increased in the past week (11.9% in week 45 to 12.8% in week 46, $P < 0.001$) (Table 4). The percentage testing positive in week 46 continued to be highest in the

Eastern Cape (29.6%), followed by North West (17.9%), Western Cape (15.8%) and Limpopo (13.1%) provinces. The percentage testing positive in the public sector remains higher than the national average, not weighted for population size, in the Western Cape, Eastern Cape, North West 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, 25 October – 14 November 2020

Province	25-31 Oct		1-7 Nov		8-14 Nov	
	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	6420	552 (8.6)	7074	748 (10.6)	7517	1186 (15.8)
Eastern Cape	8630	2002 (23.2)	10767	2819 (26.2)	9344	2766 (29.6)
Northern Cape	2405	309 (12.8)	1870	197 (10.5)	1769	175 (9.9)
Free State	4343	727 (16.7)	3684	398 (10.8)	2924	208 (7.1)
KwaZulu-Natal	8755	467 (5.3)	9106	394 (4.3)	8035	344 (4.3)
North West	1371	271 (19.8)	1247	200 (16.0)	1243	223 (17.9)
Gauteng	10753	614 (5.7)	10003	440 (4.4)	9884	379 (3.8)
Mpumalanga	1913	214 (11.2)	1853	207 (11.2)	1741	154 (8.8)
Limpopo	934	160 (17.1)	914	121 (13.2)	792	104 (13.1)
Unknown	0	0 (0.0)	0	0 (0.0)	22	1 (4.5)
Total	45524	5316 (11.7)	46518	5524 (11.9)	43271	5540 (12.8)

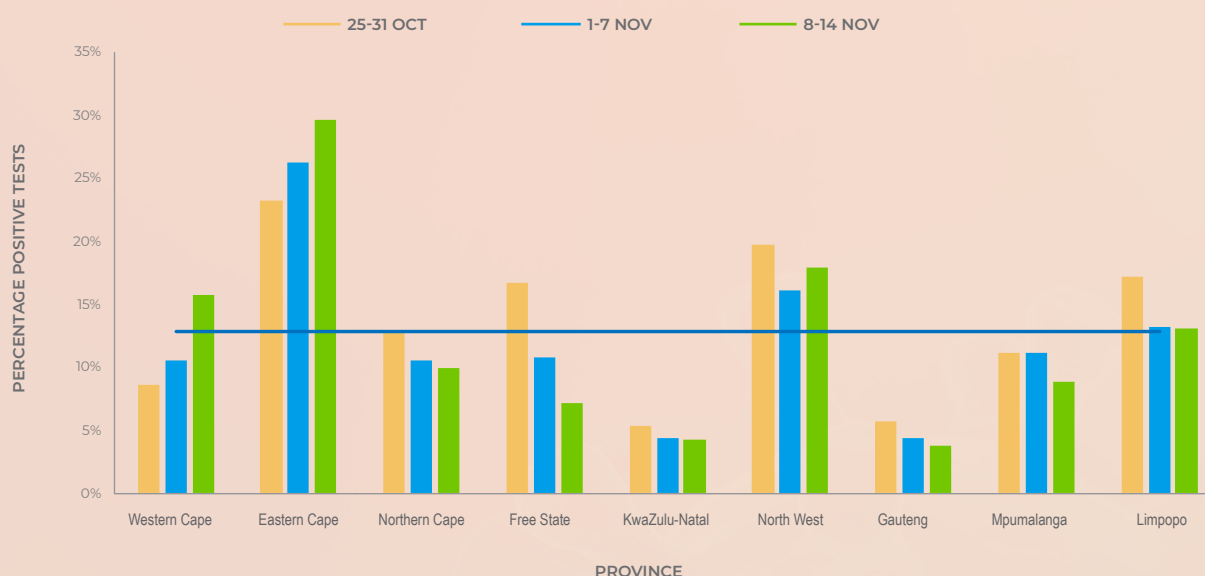


Figure 8. Weekly percentage testing positive in the public sector, by province, South Africa, 25 October – 14 November 2020. The horizontal blue line shows the national mean for week 46, beginning 8 November 2020.

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 8-14 November, with the highest proportion testing positive nationally. This week's list is dominated by facilities in the Eastern Cape (15) and Western Cape (9).

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Table 5. Public healthcare facilities with a high proportion testing positive, 8-14 November 2020

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Eastern Cape	37	0.730 (0.587;0.873)
Facility 2	Eastern Cape	80	0.600 (0.493;0.707)
Facility 3	North West	25	0.560 (0.365;0.755)
Facility 4	Eastern Cape	27	0.556 (0.368;0.743)
Facility 5	Western Cape	43	0.535 (0.386;0.684)
Facility 6	Western Cape	32	0.531 (0.358;0.704)
Facility 7	Eastern Cape	27	0.519 (0.330;0.707)
Facility 8	Eastern Cape	29	0.517 (0.335;0.699)
Facility 9	Western Cape	61	0.508 (0.383;0.634)
Facility 10	Western Cape	163	0.497 (0.420;0.574)
Facility 11	Western Cape	41	0.488 (0.335;0.641)
Facility 12	Eastern Cape	39	0.487 (0.330;0.644)
Facility 13	Eastern Cape	94	0.479 (0.378;0.580)
Facility 14	Western Cape	57	0.474 (0.344;0.603)
Facility 15	Eastern Cape	345	0.467 (0.414;0.519)
Facility 16	Eastern Cape	82	0.463 (0.355;0.571)
Facility 17	Eastern Cape	63	0.460 (0.337;0.583)
Facility 18	Eastern Cape	33	0.455 (0.285;0.624)
Facility 19	Eastern Cape	54	0.444 (0.312;0.577)
Facility 20	Western Cape	25	0.440 (0.245;0.635)
Facility 21	Western Cape	213	0.432 (0.365;0.498)
Facility 22	Eastern Cape	502	0.430 (0.387;0.474)
Facility 23	Eastern Cape	49	0.429 (0.290;0.567)
Facility 24	Western Cape	118	0.424 (0.335;0.513)
Facility 25	Eastern Cape	140	0.421 (0.340;0.503)

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 8-14 November 2020 are shown in Table 6. Districts showing the greatest proportions testing positive are concentrated in the Eastern Cape (15 districts), with 4 in the Western Cape, and 3 in each of Limpopo and the North West.

Bitou recorded the highest proportion testing positive for the second week in a row. Three districts showed a proportion testing positive greater than 40%, 9 greater than 30% and 6 showed a proportion testing positive less than 25%. A significant increase over the week was observed in seven districts – George and Knysna in the Western Cape; Nelson Mandela Bay districts B and C, Mnquma, and Lukanji in the Eastern Cape; and Ramotshere Moiloa in the North West.

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Table 6. Health sub-districts with the highest proportion testing positive based on public sector data for the week of 8-14 November 2020

Health district or sub-district	Province	PTP (95% CI)	Previous week
Bitou	Western Cape	0.434 (0.364-0.505)	0.380 (0.287-0.472)
George	Western Cape	0.403 (0.369-0.436)	0.260 (0.224-0.295)
Knysna	Western Cape	0.400 (0.350-0.450)	0.205 (0.158-0.251)
Nelson Mandela Bay B	Eastern Cape	0.380 (0.356-0.403)	0.319 (0.297-0.341)
Ndlambe	Eastern Cape	0.366 (0.298-0.435)	0.334 (0.282-0.385)
Nelson Mandela Bay C	Eastern Cape	0.348 (0.328-0.367)	0.299 (0.282-0.316)
Nelson Mandela Bay A	Eastern Cape	0.332 (0.287-0.376)	0.334 (0.301-0.366)
Mnquma	Eastern Cape	0.323 (0.216-0.430)	0.091 (0.039-0.143)
Ngqushwa	Eastern Cape	0.314 (0.220-0.409)	0.284 (0.204-0.364)
Makana	Eastern Cape	0.312 (0.268-0.356)	0.310 (0.262-0.358)
Lukanji	Eastern Cape	0.302 (0.195-0.409)	0.109 (0.057-0.161)
Kouga	Eastern Cape	0.300 (0.257-0.343)	0.290 (0.245-0.336)
Mafikeng	North West	0.277 (0.209-0.345)	0.238 (0.184-0.292)
Thulamela	Limpopo	0.274 (0.150-0.397)	0.173 (0.087-0.259)
Makhado	Limpopo	0.271 (0.144-0.398)	0.130 (0.033-0.227)
Senqu	Eastern Cape	0.263 (0.127-0.399)	0.161 (0.096-0.226)
Amahlathi	Eastern Cape	0.260 (0.174-0.347)	0.192 (0.136-0.249)
Ramotshere Moiloa	North West	0.258 (0.180-0.336)	0.057 (0.016-0.098)
Sundays River Valley	Eastern Cape	0.251 (0.180-0.322)	0.269 (0.211-0.327)
Baviaans	Eastern Cape	0.246 (0.143-0.349)	0.246 (0.166-0.325)
Ikwezi	Eastern Cape	0.235 (0.131-0.340)	0.213 (0.140-0.286)
Mossel Bay	Western Cape	0.234 (0.187-0.281)	0.184 (0.127-0.241)
Camdeboo	Eastern Cape	0.229 (0.197-0.261)	0.279 (0.235-0.323)
Makhuduthamaga	Limpopo	0.215 (0.072-0.358)	0.089 (0.000-0.186)
Tlokwe City Council	North West	0.207 (0.091-0.322)	0.226 (0.130-0.321)

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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HEALTH SUB-DISTRICT

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 8-14 November 2020.

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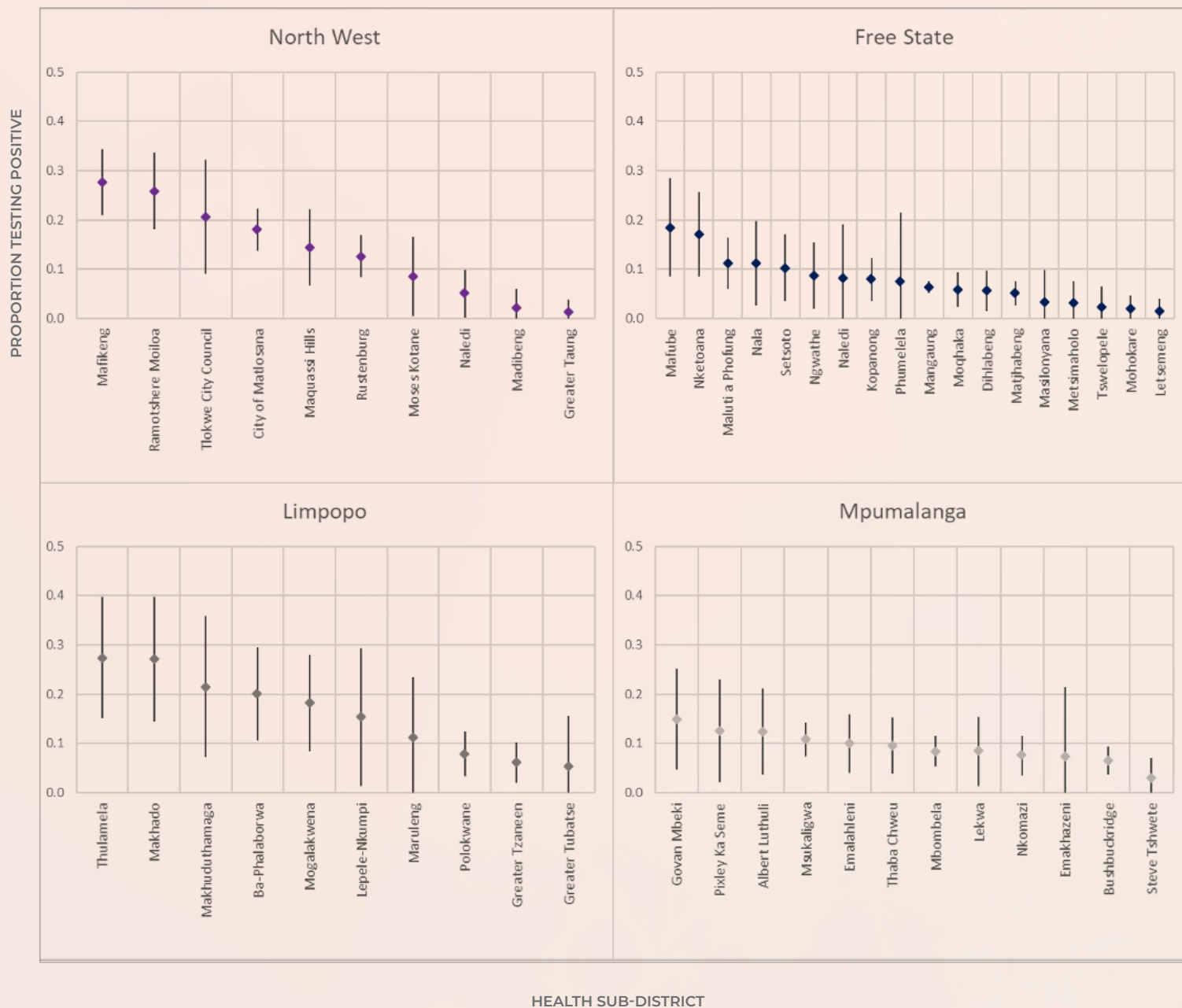


Figure 9. Proportions testing positive by health sub-districts in Western Cape, Eastern Cape, Gauteng, KwaZulu-Natal, North West, Free State, Limpopo, Mpumalanga and Northern Cape provinces based on public sector data for the week of 8-14 November 2020.

COVID-19 TESTING SUMMARY

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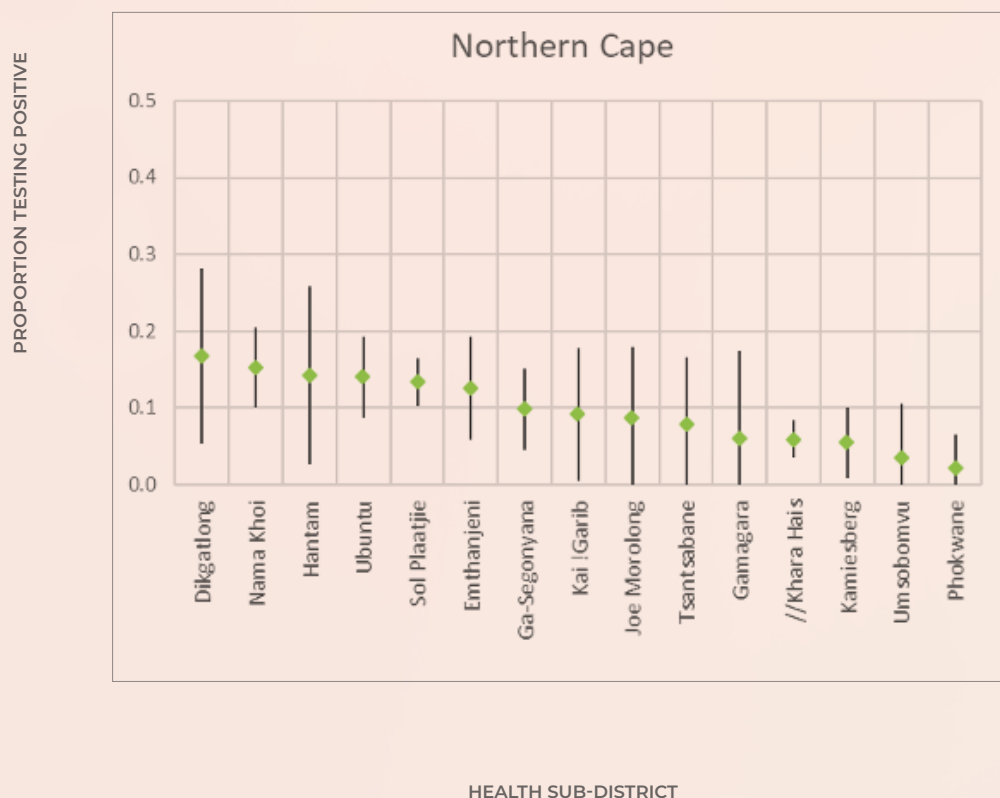


Figure 9. Proportions testing positive by health sub-districts in Western Cape, Eastern Cape, Gauteng, KwaZulu-Natal, North West, Free State, Limpopo, Mpumalanga and Northern Cape provinces based on public sector data for the week of 8-14 November 2020.

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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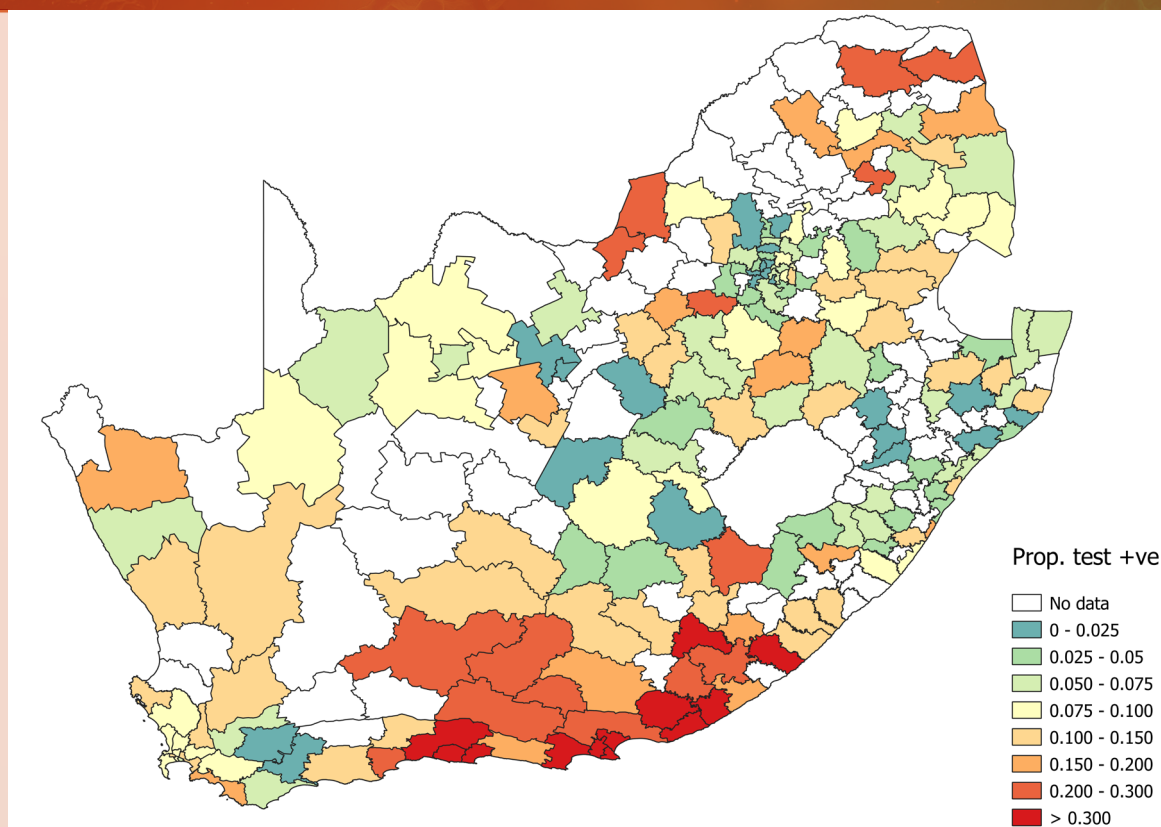


Figure 10. Proportion testing positive by health sub-district based on public sector data for the week of 8-14 November 2020, South Africa. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

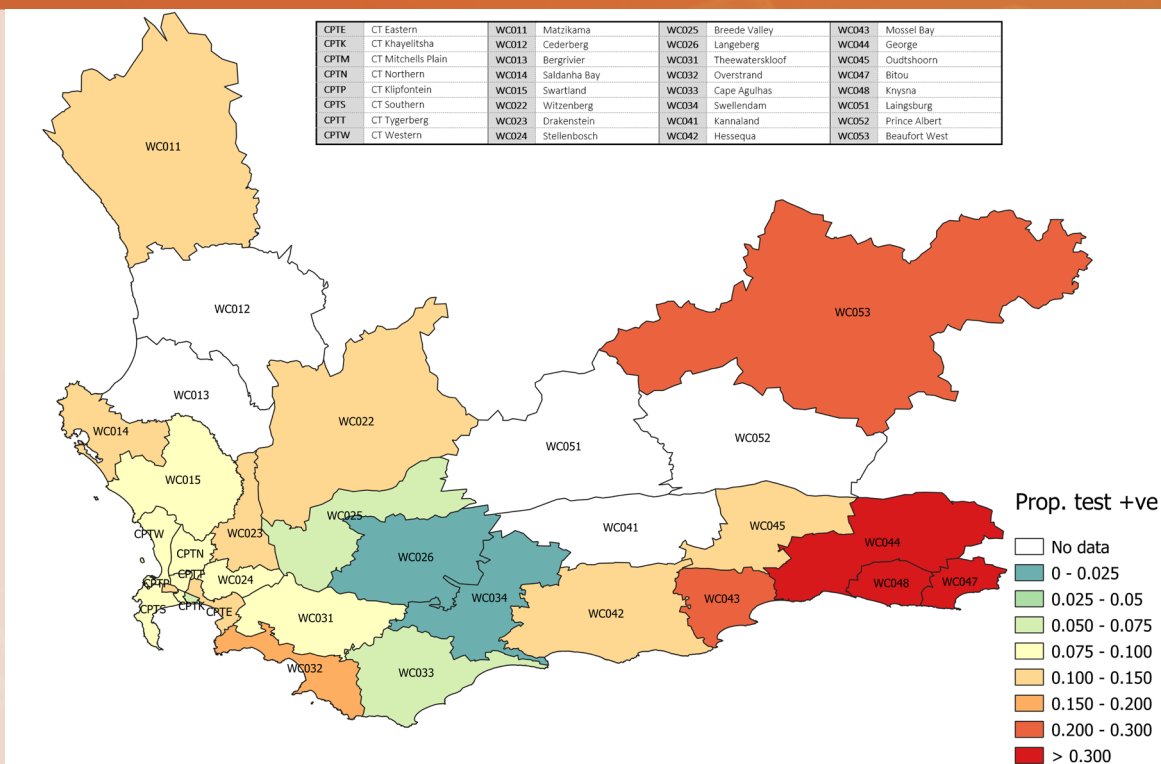


Figure 11. Health sub-districts in the Western Cape province with a high proportion testing positive based on public sector data for the week of 8-14 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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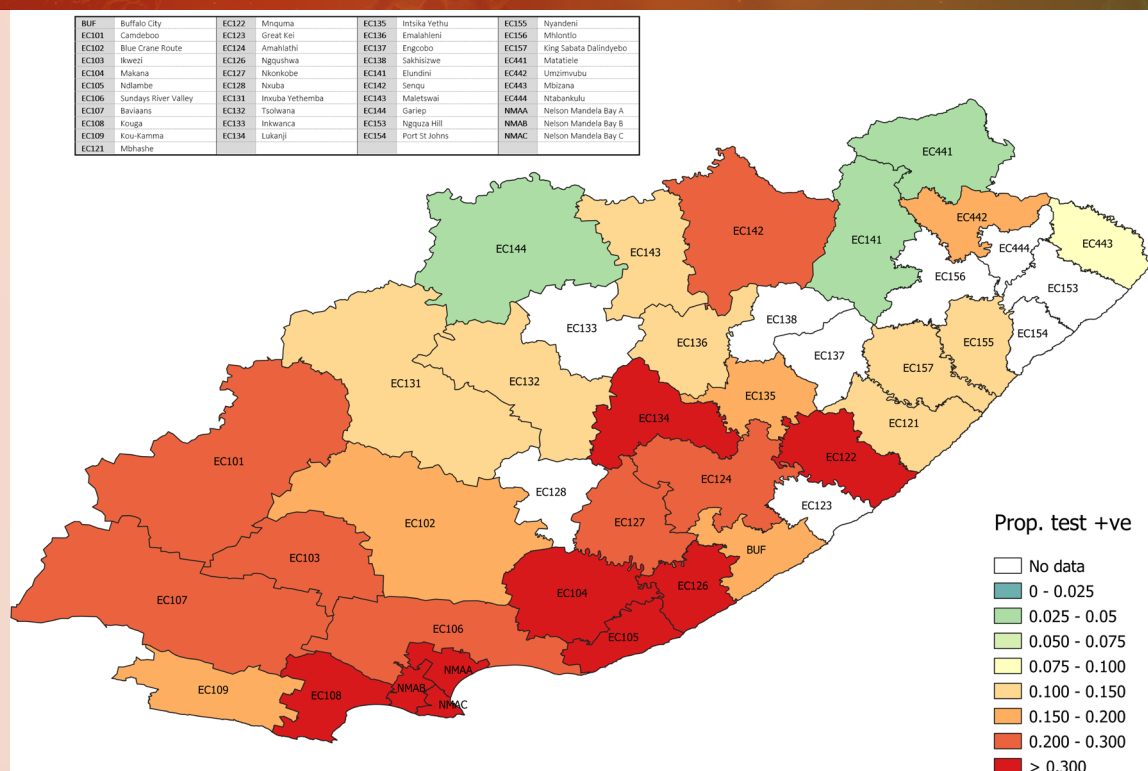


Figure 12. Health sub-districts in the Eastern Cape province with a high proportion testing positive based on public sector data for the week of 8-14 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

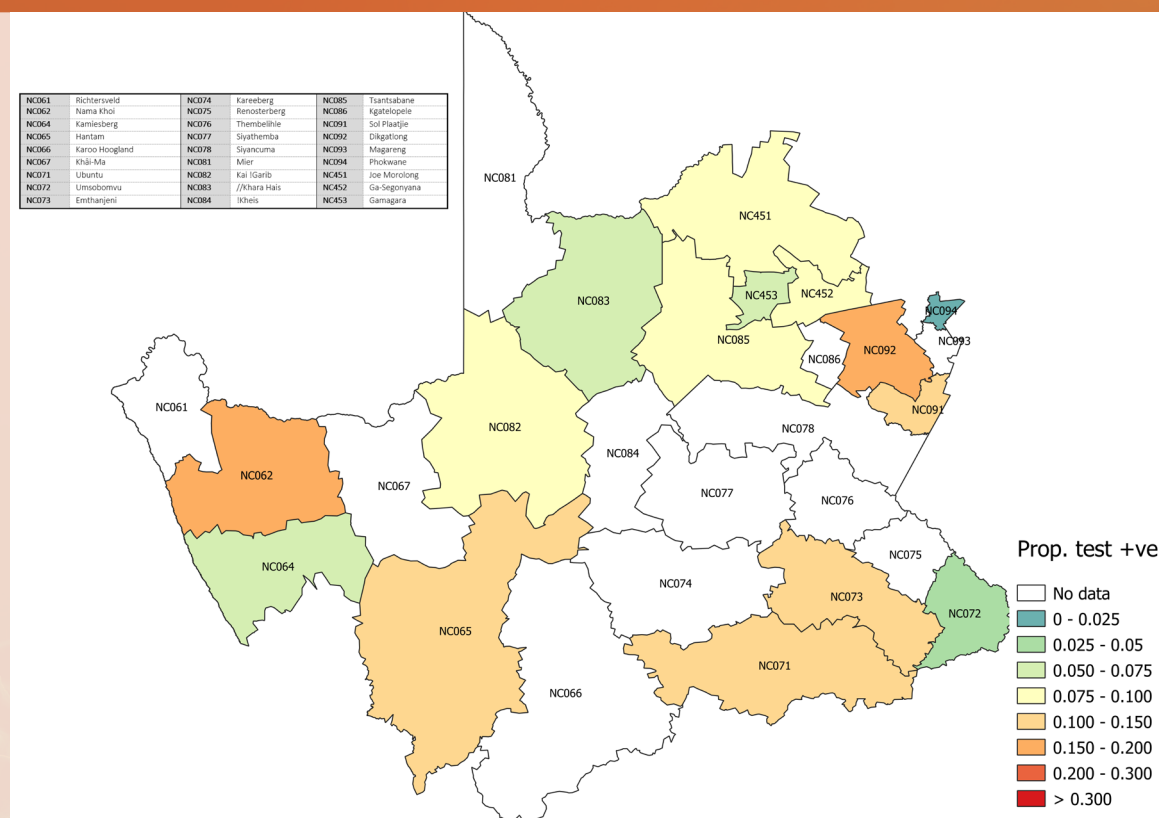


Figure 13. Health sub-districts in Northern Cape Province with a high proportion testing positive based on public sector data for the week of 8-14 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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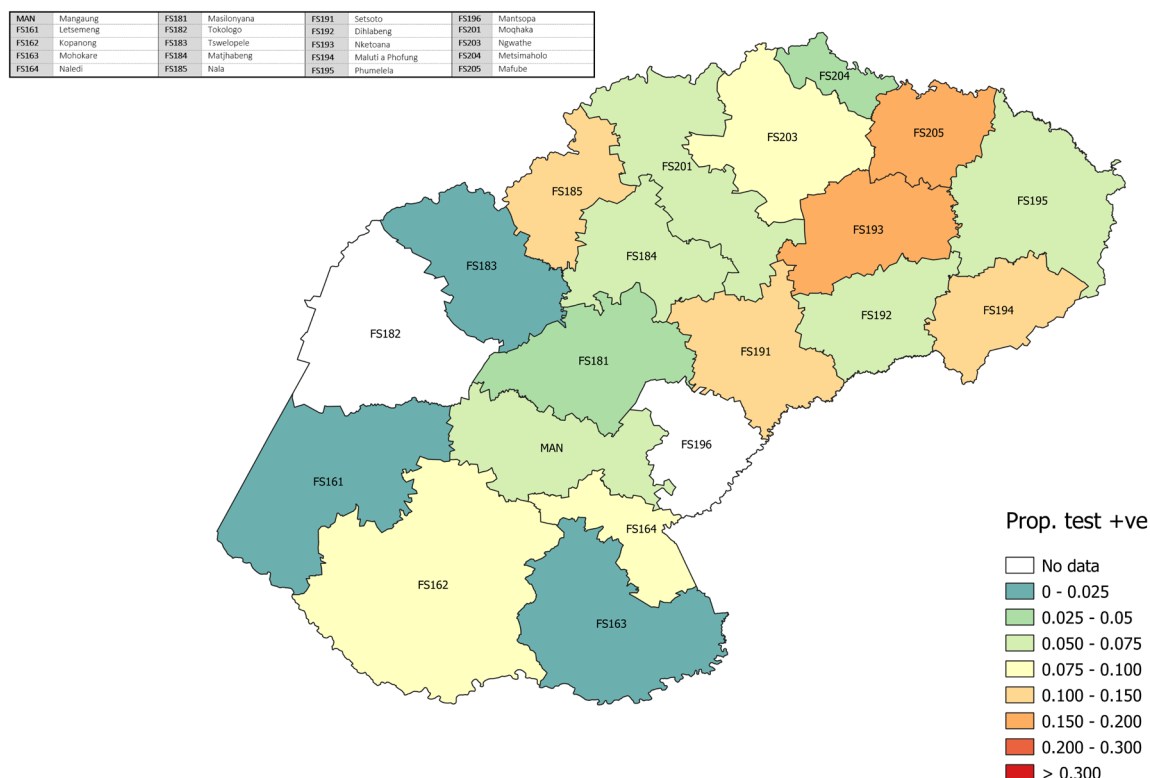


Figure 14. Health sub-districts in Free State Province with a high proportion testing positive based on public sector data for the week of 8-14 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

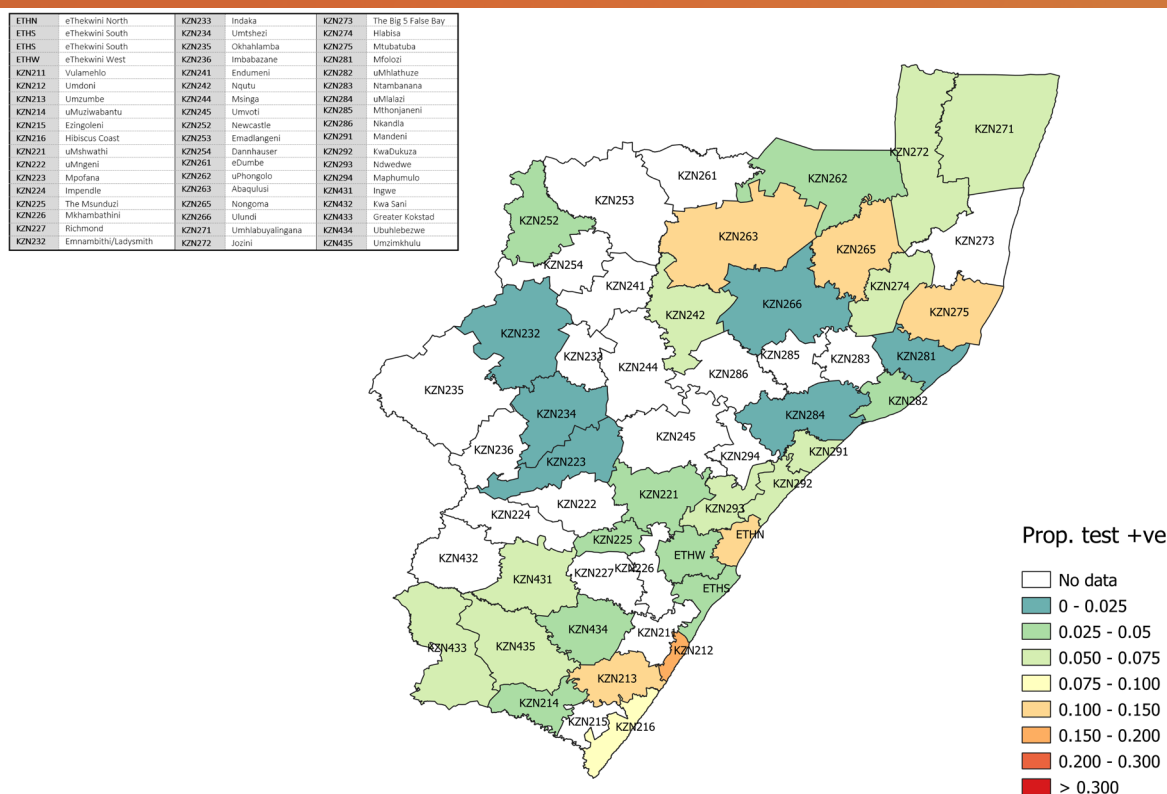


Figure 15. Health sub-districts in KwaZulu-Natal Province with a high proportion testing positive based on public sector data for the week of 8-14 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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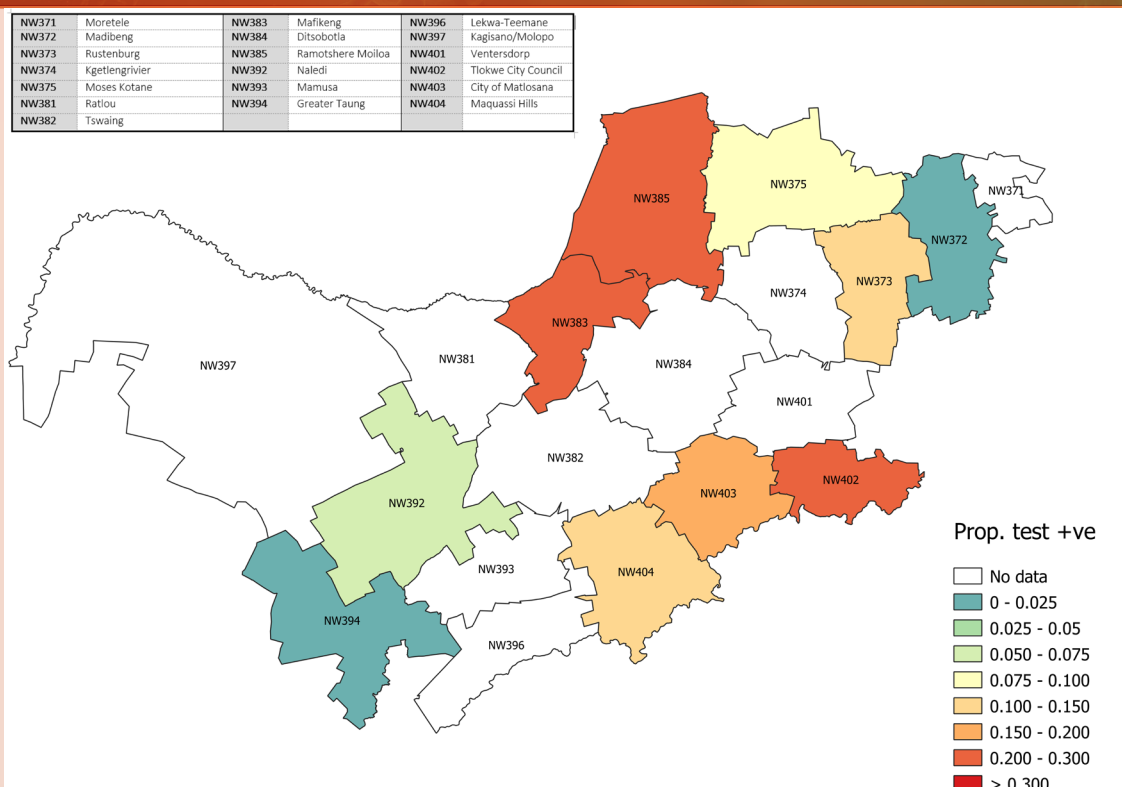


Figure 16. Health sub-districts in North West Province with a high proportion testing positive based on public sector data for the week of 8-14 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

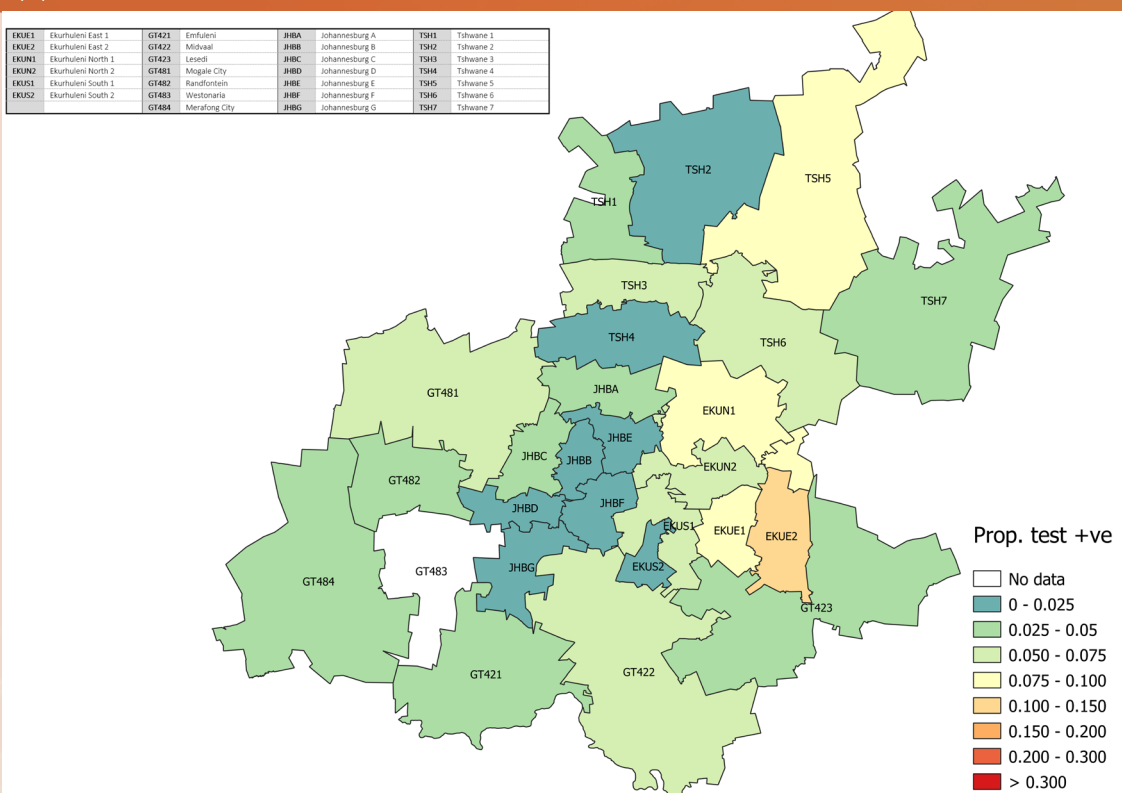


Figure 17. Health sub-districts in Gauteng Province with a high proportion testing positive based on public sector data for the week of 8-14 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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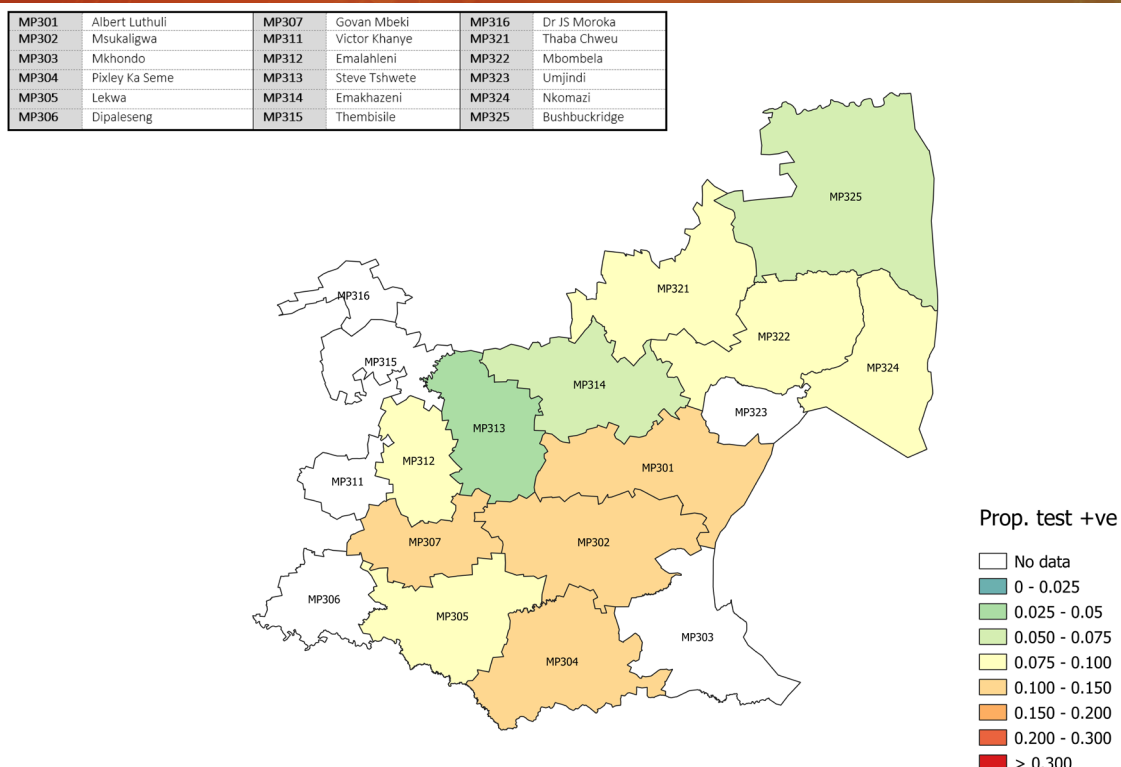


Figure 18. Health sub-districts in Mpumalanga Province with a high proportion testing positive based on public sector data for the week of 8-14 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

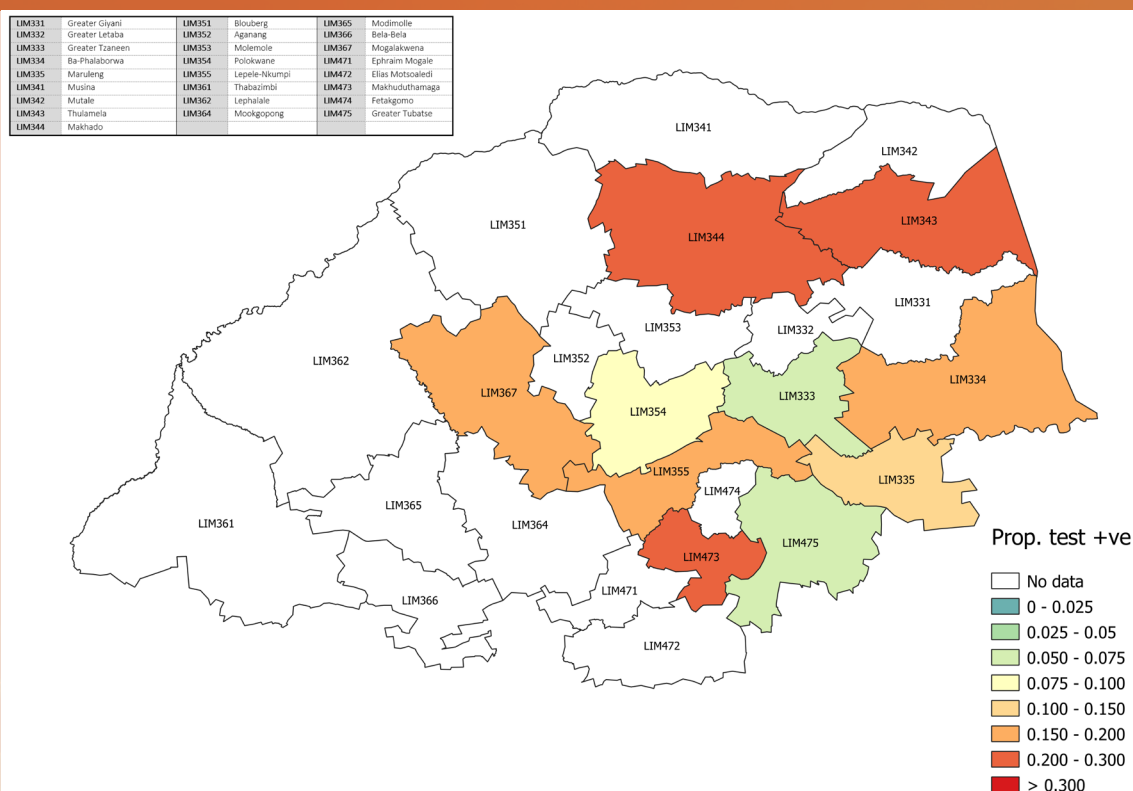


Figure 19. Health sub-districts in Limpopo Province with a high proportion testing positive based on public sector data for the week of 8-14 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

COVID-19 TESTING SUMMARY

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Testing by patient admission status

In week 46, 34.2% of tests in the public sector were performed for hospitalised patients (Figure 20). The proportion of inpatient tests was highest in KwaZulu-Natal (46.4%), Gauteng (44.6%), Northern Cape (43.6%) and North West (42.3%) provinces. Comparing week 46 to the previous week, the proportion of inpatient tests increased in seven provinces including Eastern

Cape, Northern Cape, Free State, KwaZulu-Natal, North West, Gauteng and Limpopo. The percentage testing positive in week 46 remained lower among inpatients (8.5%) compared to outpatients (15.3%), although higher in both groups compared to the previous week (Figure 21). In the public sector in week 46 the mean laboratory turnaround time continued to be lower for inpatients (1.5 days) compared to outpatients (2.2 days) (Figure 22).

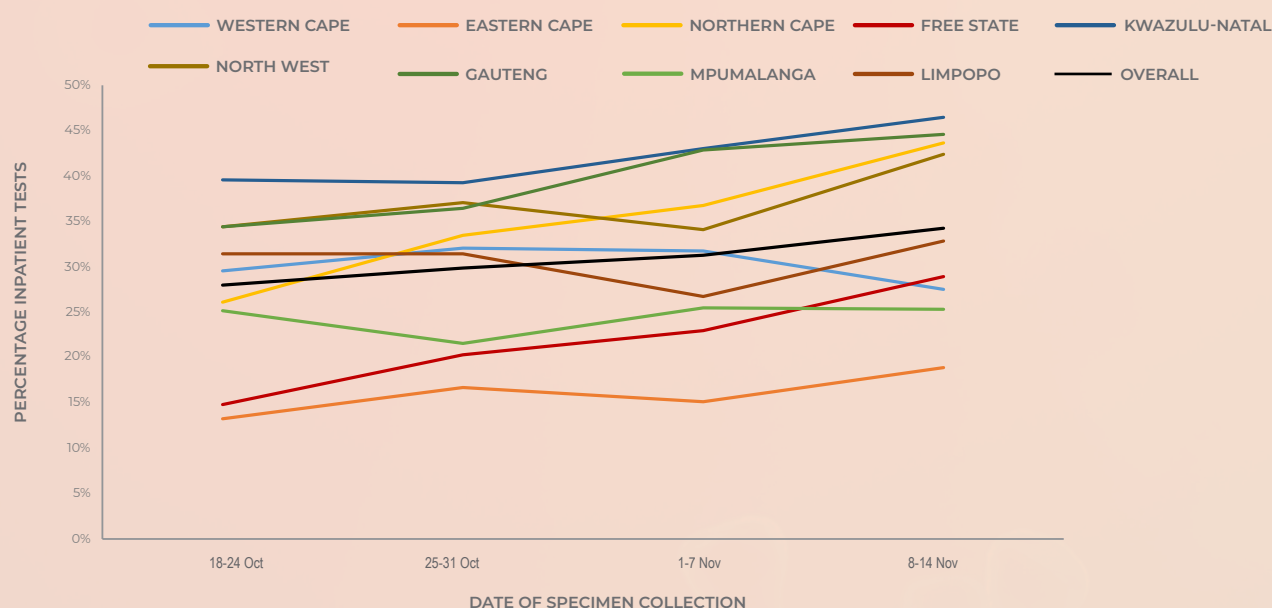


Figure 20. Percentage of inpatient tests performed in the public sector by province, 18 October – 14 November 2020

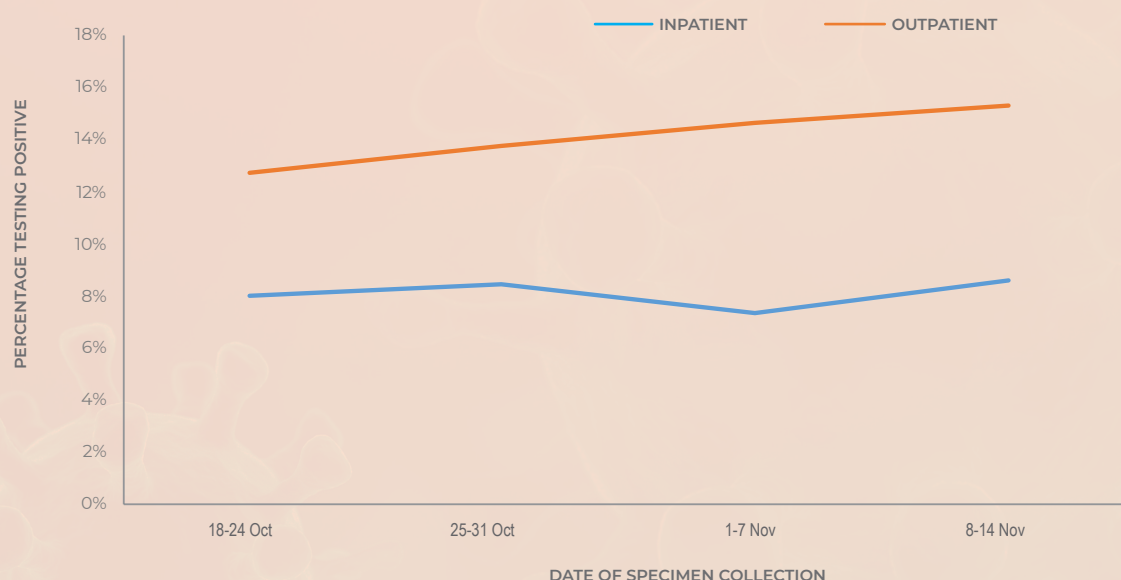


Figure 21. Percentage testing positive by patient admission status in the public sector, 18 October – 14 November 2020

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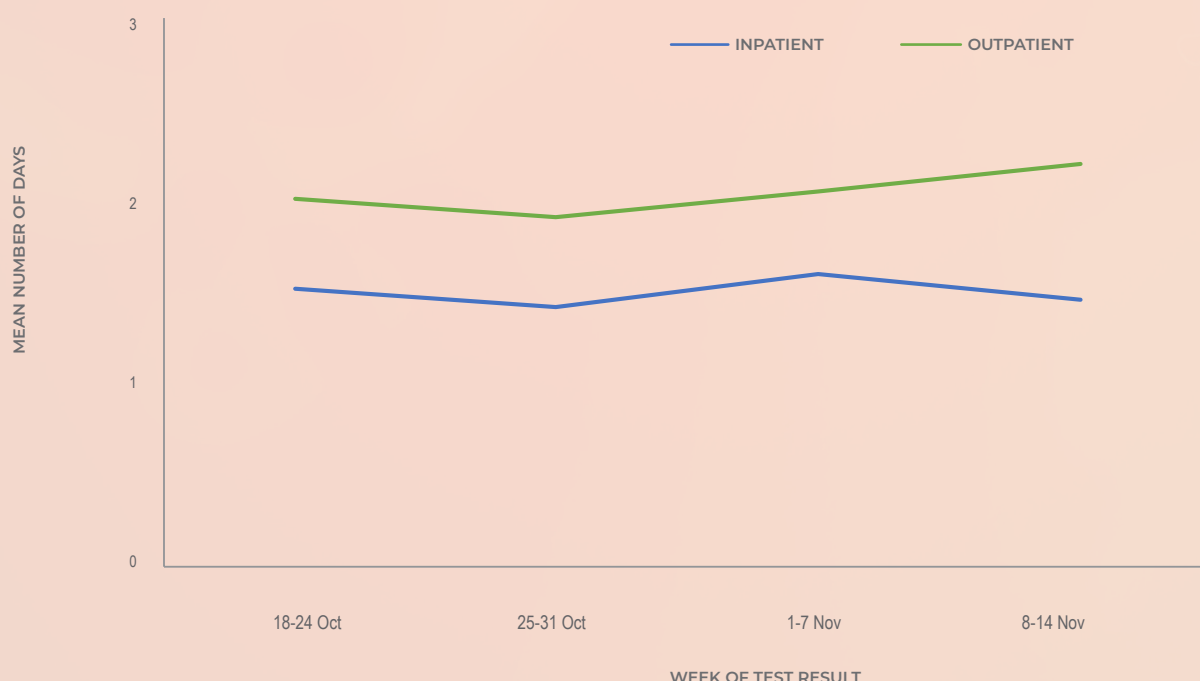


Figure 22. Mean number of days between date of specimen collection and date of test result, by patient admission status and date of test result in the public sector, South Africa, 18 October – 14 November 2020

Testing by age and sex

The mean age of individuals tested in week 46 was 39.3 years, similar to the previous week. The mean age of individuals with a positive test in week 46 was 41.7 years. The mean age of individuals with a positive test in week 46 did not differ between males (41.8 years)

and females (41.7 years, $P=0.703$) (Table 7). The sex ratio (the number of males per 100 females) of individuals with a positive test in week 46 was 77.1. In both sexes the proportion testing positive in week 46 was similar to the previous two weeks in the younger age groups (<40 years), but increased in the older age groups (≥ 40 years) (Figure 23).

Table 7. Mean age and sex ratio of individuals tested, South Africa, 18 October – 14 November 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
43	18 October	38.1	38.5	39.9	39.9	88.1	72.7
44	25 October	38.9	39.4	40.7	40.9	90.1	76.2
45	1 November	39.0	39.5	40.6	40.9	90.0	76.8
46	8 November	39.1	39.5	41.8	41.7	89.3	77.1

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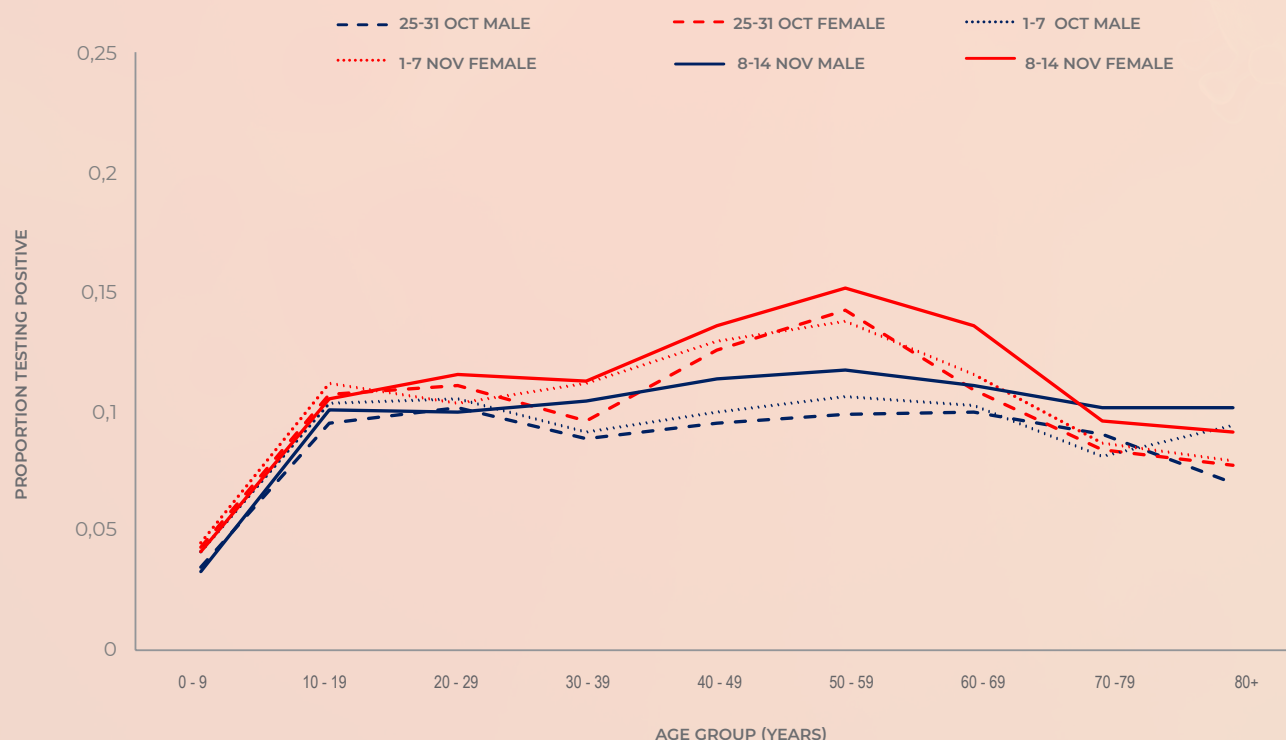


Figure 23. Weekly proportion testing positive by age group and sex, South Africa, 25 October – 14 November 2020

From week 43 to week 46, the percentage testing positive increased by 1.3% in males (from 8.9% to 10.2%) and increased by 1.0% in females (from 10.8% to 11.8%) (Table 8). In week 46 the percentage testing

positive was higher in females compared to males in the 0-19 years ($P=0.003$), 20-39 years ($P<0.001$), 40-59 years ($P<0.001$) and 60-69 years ($P<0.001$) age groups, and did not differ in individuals aged ≥ 70 years.

Table 8. Percentage testing positive by sex and week, South Africa, 18 October – 14 November 2020

Age (years)	18-24 Oct		25-31 Oct		1-7 Nov		8-14 Nov	
	Male	Female	Male	Female	Male	Female	Male	Female
0-19	6.4%	7.8%	6.4%	7.9%	7.1%	8.3%	6.5%	7.7%
20-39	9.3%	11.0%	9.4%	10.2%	9.7%	10.8%	10.3%	11.4%
40-59	9.9%	12.6%	9.7%	13.3%	10.3%	13.3%	11.5%	14.3%
60-69	9.6%	11.3%	10.0%	10.9%	10.3%	11.5%	11.0%	13.6%
70+	7.9%	8.6%	8.5%	8.2%	8.4%	8.4%	10.2%	9.4%
Total	8.9%	10.8%	9.0%	10.7%	9.4%	11.1%	10.2%	11.8%

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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 peaked in week 28, and subsequently decreased. The number of tests performed in week 46 were similar to the previous few weeks. Gauteng (29.7%), Western Cape (18.6%), Eastern Cape (16.1%) and KwaZulu-Natal (15.1%) provinces performed the majority of tests in the past week. Western Cape (275 per 100,000 persons), Eastern Cape (248 per 100,000 persons), Northern Cape (233 per 100,000 persons) and Free State (230 per 100,000 persons) provinces had the highest testing rates in week 46, with increases in testing rates observed in Eastern Cape and Western Cape. The overall laboratory turnaround time in week 46 was 1.4 days; 1.9 days in the public sector and 1.0 day in the private sector.

The percentage testing positive has decreased from a peak of 31.2% in week 29. In week 46 the percentage testing positive was 11.0%, slightly higher than the previous six weeks. The percentage testing positive was highest in the Eastern Cape (31.9%) and Western Cape (12.2%). Percentages testing positive were <10% in Northern Cape, Free State, North West, Gauteng, KwaZulu-Natal, Mpumalanga and Limpopo. In week 46, compared to the previous week, the percentage testing positive increased in the Eastern Cape and Western Cape, decreased in Northern Cape, Free State, and Mpumalanga, and did not change in KwaZulu-Natal, North West, Gauteng and Limpopo. Of the 25 districts with the highest proportions testing positive in week 46, fifteen were in the Eastern Cape.