

COVID-19 TESTING SUMMARY



NATIONAL INSTITUTE FOR
COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 48 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 28 November 2020 (Week 48 of 2020).

HIGHLIGHTS

- In the period 1 March 2020 through 28 November 2020, 4,559,957 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 48 were similar to the previous few weeks
- Western Cape (361 per 100,000 persons) and Eastern Cape (306 per 100,000 persons) provinces had the highest testing rates in week 48
- Percentage testing positive decreased from a peak of 30.5% in week 29 to 9.5% in week 43. In week 48 the percentage testing positive was 13.8%, higher than has been observed in the previous 12 weeks.
- Percentage testing positive remained highest in the Eastern Cape (32.2%) and Western Cape (21.0%). Percentages testing positive were <10% in Northern Cape, Free State, North West, Gauteng, KwaZulu-Natal, Mpumalanga and Limpopo.
- In week 48, compared to the previous week, the percentage testing positive increased in the Western Cape, KwaZulu-Natal and Gauteng, decreased in the Eastern Cape and North West, and did not change in Northern Cape, Free State, Mpumalanga and Limpopo.
- Mean laboratory turnaround time in week 48 was 1.9 days; 2.2 days in the public sector and 1.7 days in the private sector.

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Methods

Testing for SARS-CoV-2 began on 28 January 2020 at the NICD and after the first case was confirmed on 5th March 2020, testing was expanded to a larger network of private and NHLS laboratories. Laboratory testing was conducted for people meeting the case definition for persons under investigation (PUI). This definition was updated several times over the reporting period but at different times included (i) symptomatic individuals seeking testing, (ii) hospitalized individuals for whom testing was done, (iii) individuals in high-risk occupations, (iv) individuals in outbreak settings, and (v) individuals identified through community screening and testing (CST) programmes which were implemented in April 2020 and was discontinued from the week beginning 17th May. CST was implemented differently in different provinces, and ranged from mass screening approaches (including asymptomatic individuals) to screening of individuals in contact with a confirmed case to targeted testing of clusters of cases. Respiratory specimens were submitted to testing laboratories. Testing was performed using reverse transcriptase real-time PCR, which detects SARS-CoV-2 viral genetic material. Laboratories used any one of several in-house and commercial PCR assays to test for the presence of SARS-CoV-2 RNA.

Test results were automatically fed into a data warehouse after result authorisation. We excluded specimens collected outside South Africa and duplicate test results for an individual. From week 48 (the current reporting week) onwards, test data (including retrospective data) will be reported from the Notifiable Medical Conditions Surveillance System (NMCCS) in order to align the source of test data reporting to that of case data and to prepare for the inclusion of antigen-based tests. The NMCCS also has enhanced algorithms to de-duplicate repeat records of the same test. 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 28 November 2020 (week 48).

Testing volumes and proportion testing positive

From 1 March through 28 November 2020, 4,559,957 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=269,041), but have subsequently decreased. In week 48, 116,781 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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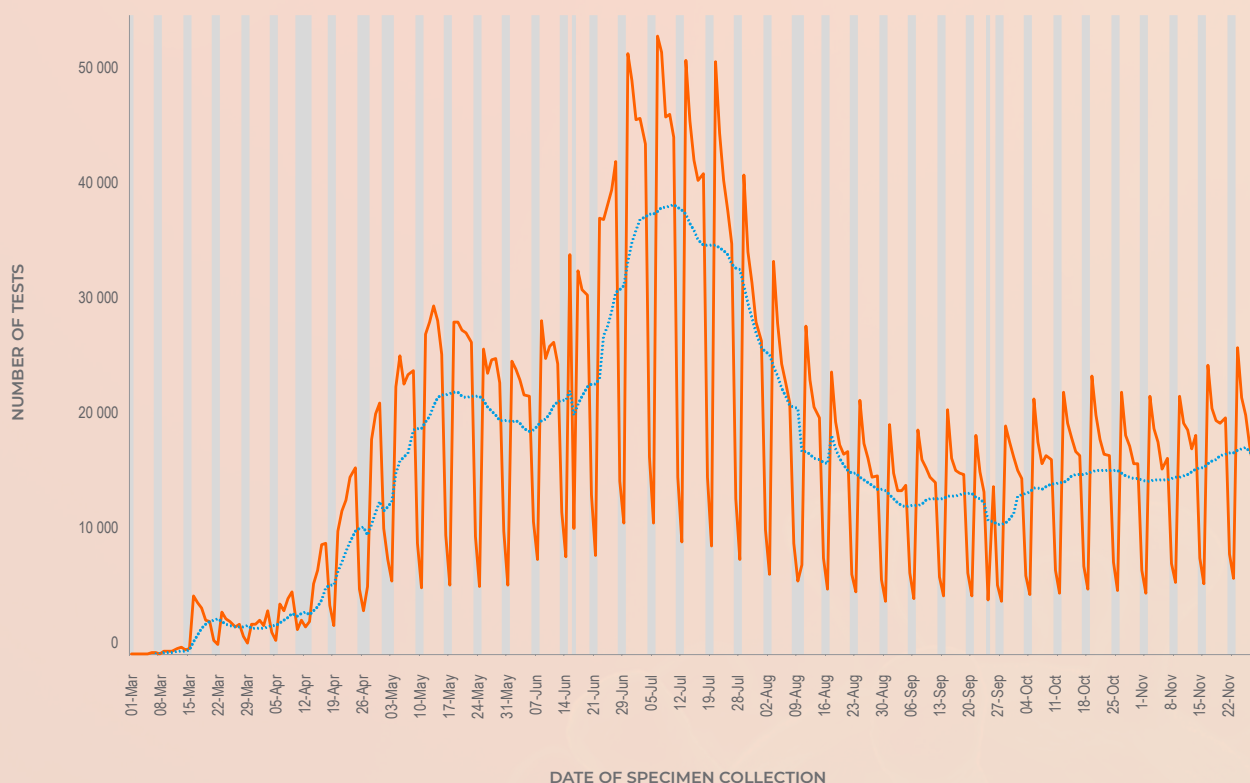


Figure 1. Number of laboratory tests conducted by date of specimen collection, South Africa, 1 March – 28 November 2020. Blue dotted line shows the 7-day moving average of the number of tests conducted. Grey bars highlight weekend days and public holidays.

The overall percentage testing positive from week 10 through 48 was 15.9% (Table 1). The percentage testing positive increased week on week from week 18 to a peak of 30.5% in week 29, and subsequently decreased to 9.5% in week 43. The percentage testing positive in week 48 was 13.8%, higher than has been observed in the previous 12 weeks (Figure 2).

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Table 1. Weekly number of tests conducted and positive tests, South Africa, 1 March – 28 November 2020

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)
10	01-Mar	411 (0.0)	8	1.9
11	08-Mar	2274 (0.0)	71	3.1
12	15-Mar	20911 (0.5)	662	3.2
13	22-Mar	16818 (0.4)	411	2.4
14	29-Mar	17190 (0.4)	377	2.2
15	05-Apr	24486 (0.5)	522	2.1
16	12-Apr	41634 (0.9)	980	2.4
17	19-Apr	75624 (1.7)	1851	2.4
18	26-Apr	89252 (2.0)	2783	3.1
19	03-May	136387 (3.0)	5294	3.9
20	10-May	156636 (3.4)	7141	4.6
21	17-May	155847 (3.4)	10063	6.5
22	24-May	141139 (3.1)	11053	7.8
23	31-May	135448 (3.0)	12769	9.4
24	07-Jun	153199 (3.4)	18820	12.3
25	14-Jun	162647 (3.6)	28052	17.2
26	21-Jun	219594 (4.8)	48212	22.0
27	28-Jun	265542 (5.8)	66575	25.1
28	05-Jul	269041 (5.9)	76663	28.5
29	12-Jul	246774 (5.4)	75261	30.5
30	19-Jul	233047 (5.1)	69797	29.9
31	26-Jul	182473 (4.0)	51451	28.2
32	02-Aug	148700 (3.3)	35432	23.8
33	09-Aug	115932 (2.5)	22443	19.4
34	16-Aug	109462 (2.4)	18310	16.7
35	23-Aug	99270 (2.2)	14072	14.2
36	30-Aug	89724 (2.0)	10894	12.1
37	06-Sep	93498 (2.1)	10388	11.1
38	13-Sep	96978 (2.1)	10516	10.8
39	20-Sep	78703 (1.7)	8815	11.2
40	27-Sep	97250 (2.1)	9625	9.9
41	04-Oct	103054 (2.3)	10305	10.0
42	11-Oct	108578 (2.4)	10488	9.7
43	18-Oct	111046 (2.4)	10531	9.5
44	25-Oct	104884 (2.3)	10010	9.5
45	01-Nov	105965 (2.3)	10543	9.9
46	08-Nov	112506 (2.5)	13018	11.6
47	15-Nov	121252 (2.7)	16458	13.6
48	22-Nov	116781 (2.6)	16103	13.8
Total		4559957 (100.0)	726767	15.9

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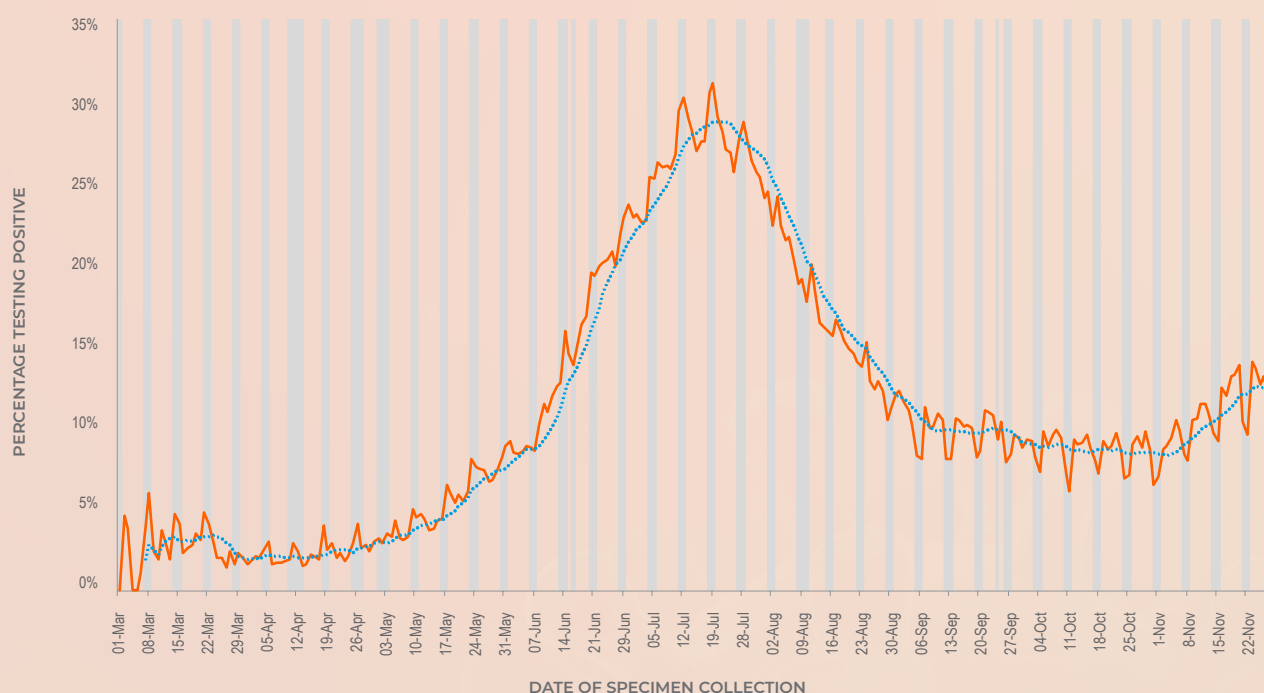


Figure 2. Percentage of laboratory tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March – 28 November 2020. Blue dotted line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

Testing in private and public sectors

From 1 March through 28 November, 2,100,924 laboratory tests were conducted in public sector laboratories, with 15.6% testing positive. Over this same period, private sector laboratories conducted 2,459,033 tests, with 16.2% testing positive (Table 2). Overall the public sector has conducted 46.1% of tests and accounted for 45.1% of positive tests. The peak percentage testing positive was observed in week 30 in the public sector (29.6%), and in week 29 in the private sector (31.6%). From week 47 to week 48, the percentage testing positive did not change in the public sector (16.6% in week 47 and 16.3% in week 48, $P=0.249$), and increased from 10.8% to 11.9% ($P<0.001$) in the private sector. In week 48 the

percentage testing positive continued to be higher in the public sector (16.3%) compared to the private sector (11.9%) ($P<0.001$).

The mean turnaround time for tests conducted in week 48 was 1.9 days. Turnaround time increased slightly in the public sector (2.2 days) and the private sector (1.7 days) (Figure 3). Turnaround times for public sector tests were >2 days in Eastern Cape (3.4 days), Northern Cape (2.3 days), North West (2.3 days) and Mpumalanga (2.3 days) (Figure 4). Turnaround times in the past week increased in Eastern Cape, Northern Cape and North West. Twenty-one of the 28 (75.0%) 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 – 28 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	253	5 (2.0)	158	3 (1.9)	61.6	62.5	1.041
11	08-Mar	351	12 (3.4)	1923	59 (3.1)	15.4	16.9	1.114
12	15-Mar	1344	51 (3.8)	19567	611 (3.1)	6.4	7.7	1.215
13	22-Mar	3359	127 (3.8)	13459	284 (2.1)	20.0	30.9	1.792
14	29-Mar	5626	174 (3.1)	11564	203 (1.8)	32.7	46.2	1.762
15	05-Apr	11341	332 (2.9)	13145	190 (1.4)	46.3	63.6	2.025
16	12-Apr	23761	612 (2.6)	17873	368 (2.1)	57.1	62.4	1.251
17	19-Apr	54152	1476 (2.7)	21472	375 (1.7)	71.6	79.7	1.561
18	26-Apr	66253	2293 (3.5)	22999	490 (2.1)	74.2	82.4	1.624
19	03-May	92311	4226 (4.6)	44076	1068 (2.4)	67.7	79.8	1.889
20	10-May	104962	5080 (4.8)	51674	2061 (4.0)	67.0	71.1	1.213
21	17-May	95426	6599 (6.9)	60421	3464 (5.7)	61.2	65.6	1.206
22	24-May	74239	5938 (8.0)	66900	5115 (7.6)	52.6	53.7	1.046
23	31-May	60232	6088 (10.1)	75216	6681 (8.9)	44.5	47.7	1.138
24	07-Jun	59942	7312 (12.2)	93257	11508 (12.3)	39.1	38.9	0.989
25	14-Jun	55954	11023 (19.7)	106693	17029 (16.0)	34.4	39.3	1.234
26	21-Jun	82496	18758 (22.7)	137098	29454 (21.5)	37.6	38.9	1.058
27	28-Jun	97369	25119 (25.8)	168173	41456 (24.7)	36.7	37.7	1.047
28	05-Jul	108004	30235 (28.0)	161037	46428 (28.8)	40.1	39.4	0.971
29	12-Jul	101322	29365 (29.0)	145452	45896 (31.6)	41.1	39.0	0.918
30	19-Jul	96236	28448 (29.6)	136811	41349 (30.2)	41.3	40.8	0.978
31	26-Jul	73921	21402 (29.0)	108552	30049 (27.7)	40.5	41.6	1.046
32	02-Aug	64155	15804 (24.6)	84545	19628 (23.2)	43.1	44.6	1.061
33	09-Aug	53700	10437 (19.4)	62232	12006 (19.3)	46.3	46.5	1.007
34	16-Aug	50920	8946 (17.6)	58542	9364 (16.0)	46.5	48.9	1.098
35	23-Aug	45507	7249 (15.9)	53763	6823 (12.7)	45.8	51.5	1.255
36	30-Aug	41079	5629 (13.7)	48645	5265 (10.8)	45.8	51.7	1.266
37	06-Sep	46389	5998 (12.9)	47109	4390 (9.3)	49.6	57.7	1.387
38	13-Sep	49105	6121 (12.5)	47873	4395 (9.2)	50.6	58.2	1.358
39	20-Sep	40932	5137 (12.6)	37771	3678 (9.7)	52.0	58.3	1.289
40	27-Sep	44226	5216 (11.8)	53024	4409 (8.3)	45.5	54.2	1.418
41	04-Oct	45568	5272 (11.6)	57486	5033 (8.8)	44.2	51.2	1.321
42	11-Oct	48230	5310 (11.0)	60348	5178 (8.6)	44.4	50.6	1.283
43	18-Oct	50160	5606 (11.2)	60886	4925 (8.1)	45.2	53.2	1.382
44	25-Oct	45512	5321 (11.7)	59372	4689 (7.9)	43.4	53.2	1.480
45	01-Nov	46603	5564 (11.9)	59362	4979 (8.4)	44.0	52.8	1.423
46	08-Nov	52045	7489 (14.4)	60461	5529 (9.1)	46.3	57.5	1.574
47	15-Nov	58270	9657 (16.6)	62982	6801 (10.8)	48.1	58.7	1.535
48	22-Nov	49669	8102 (16.3)	67112	8001 (11.9)	42.5	50.3	1.368
Total		2100924	327533 (15.6)	2459033	399234 (16.2)	46.1	45.1	0.960

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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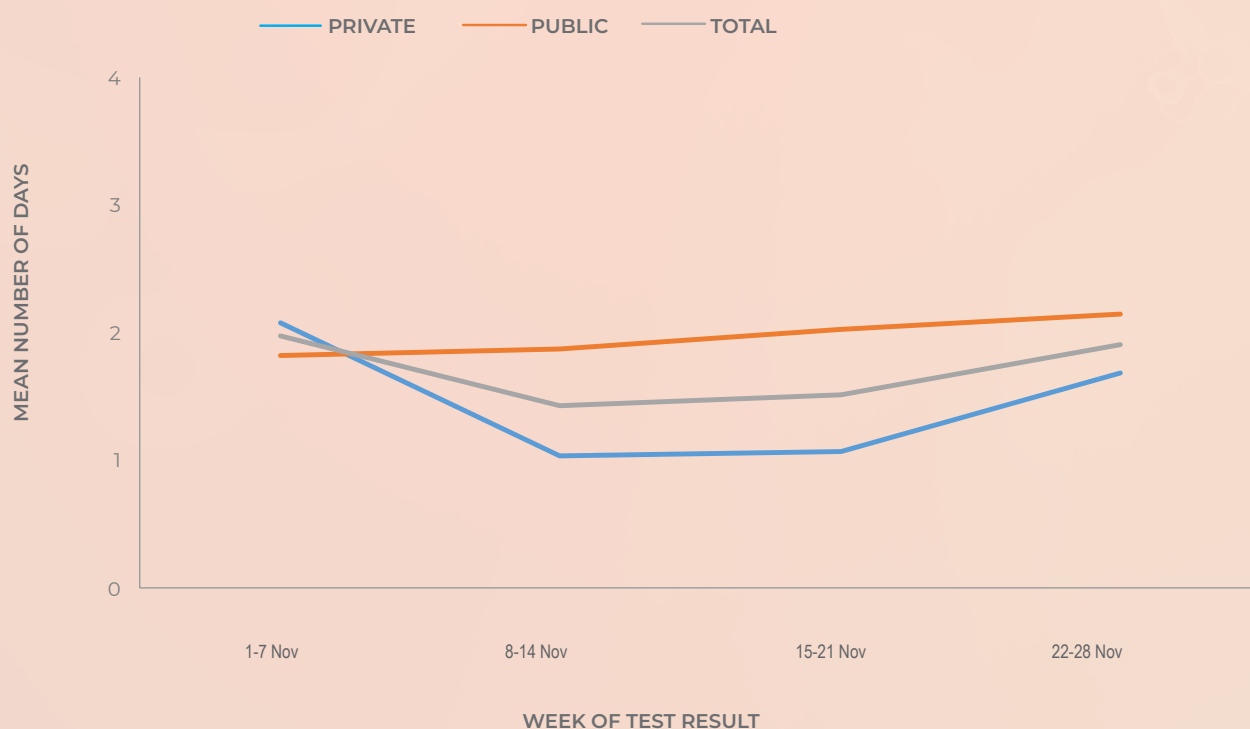


Figure 3. Mean number of days between date of specimen collection and date of test result, by week of test result, South Africa, 1-28 November 2020

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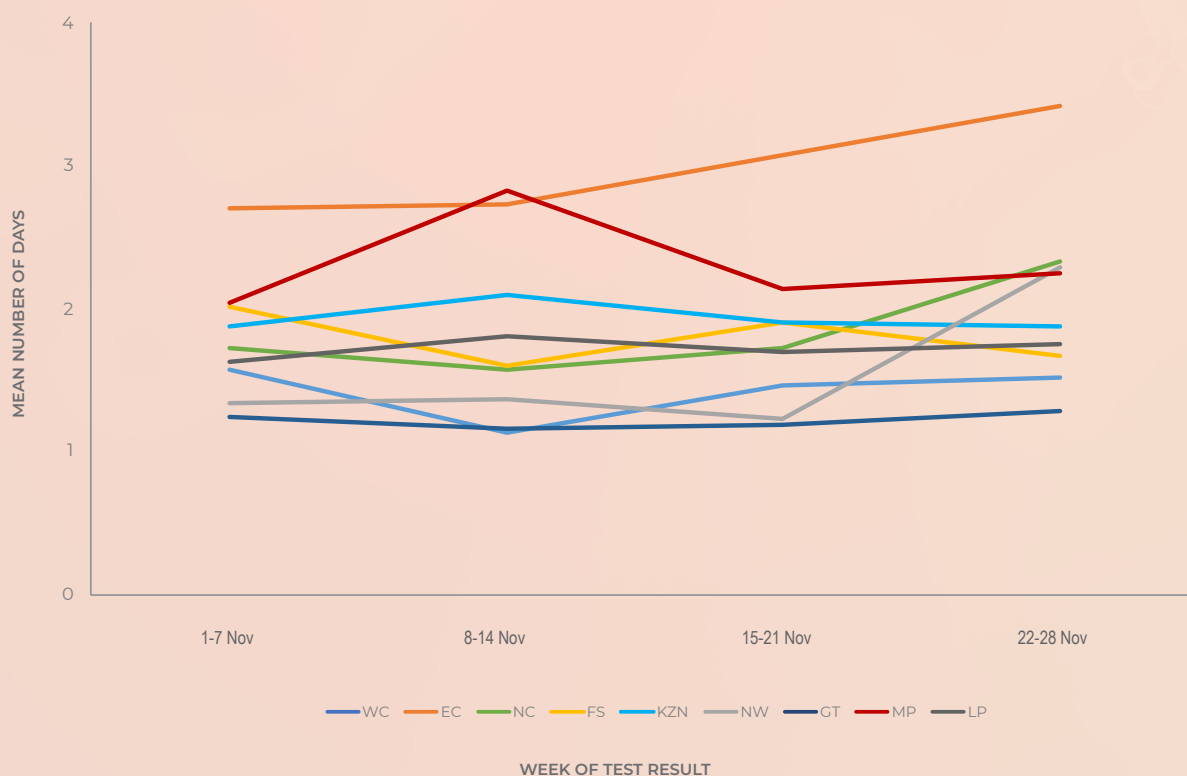


Figure 4. Mean number of days between date of specimen collection and date of test result, by week of test result and province, public sector, South Africa, 1-28 November 2020. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal; GT, Gauteng; NC, Northern Cape; NW, North West; MP, Mpumalanga; LP, Limpopo

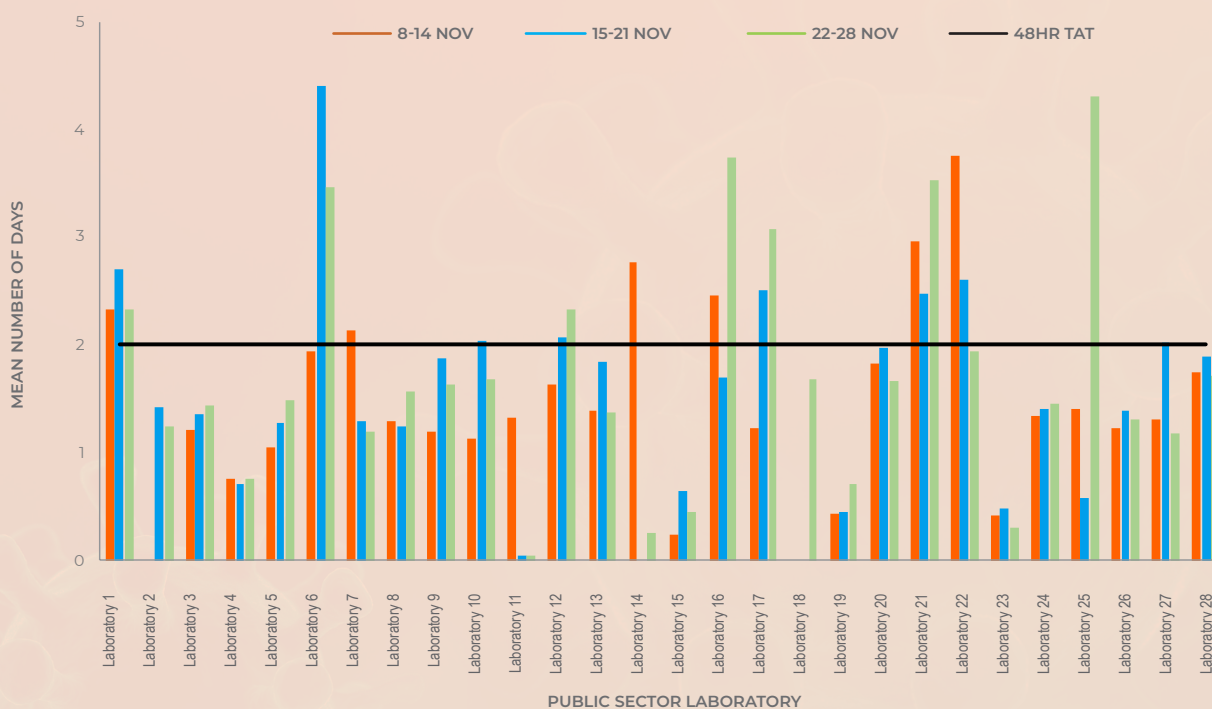


Figure 5. Mean number of days between date of specimen collection and date of test result, by public sector laboratory, 8-28 November 2020. The horizontal black line indicates 48-hour turnaround time (TAT).

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Testing by province

Gauteng (28.9%) performed the largest number of tests in week 48, followed by Western Cape (21.6%), Eastern Cape (17.7%) and KwaZulu-Natal (14.9%) provinces (Table 3). Western Cape (361 per 100,000 persons) and Eastern Cape (306 per 100,000 persons) provinces had the highest testing rates in week 48 (Figure 6). Testing rates have increased in the Eastern Cape and Western Cape over recent weeks, and decreased in Northern Cape and Free State.

The percentage testing positive in week 48 was highest in the Eastern Cape (32.2%) and Western Cape (21.0%). Percentages testing positive were <10% in Northern Cape, Free State, KwaZulu-Natal, North West, Gauteng, Mpumalanga and Limpopo in week 48 (Figure 7).

Compared to the previous week, the percentage testing positive increased by 3.9% in the Western Cape (17.2% to 21.0%, $P<0.001$), 2.1% (5.9% to 8.0%, $P<0.001$) in KwaZulu-Natal and 0.7% (4.2% to 4.8%, $P<0.001$) in Gauteng in week 48. The percentage testing positive in week 48 compared to week 47 decreased in the Eastern Cape ($P=0.001$) and North West ($P=0.027$), and did not change in Northern Cape ($P=0.331$), Free State ($P=0.128$), Mpumalanga ($P=0.080$) and Limpopo ($P=0.785$). 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).

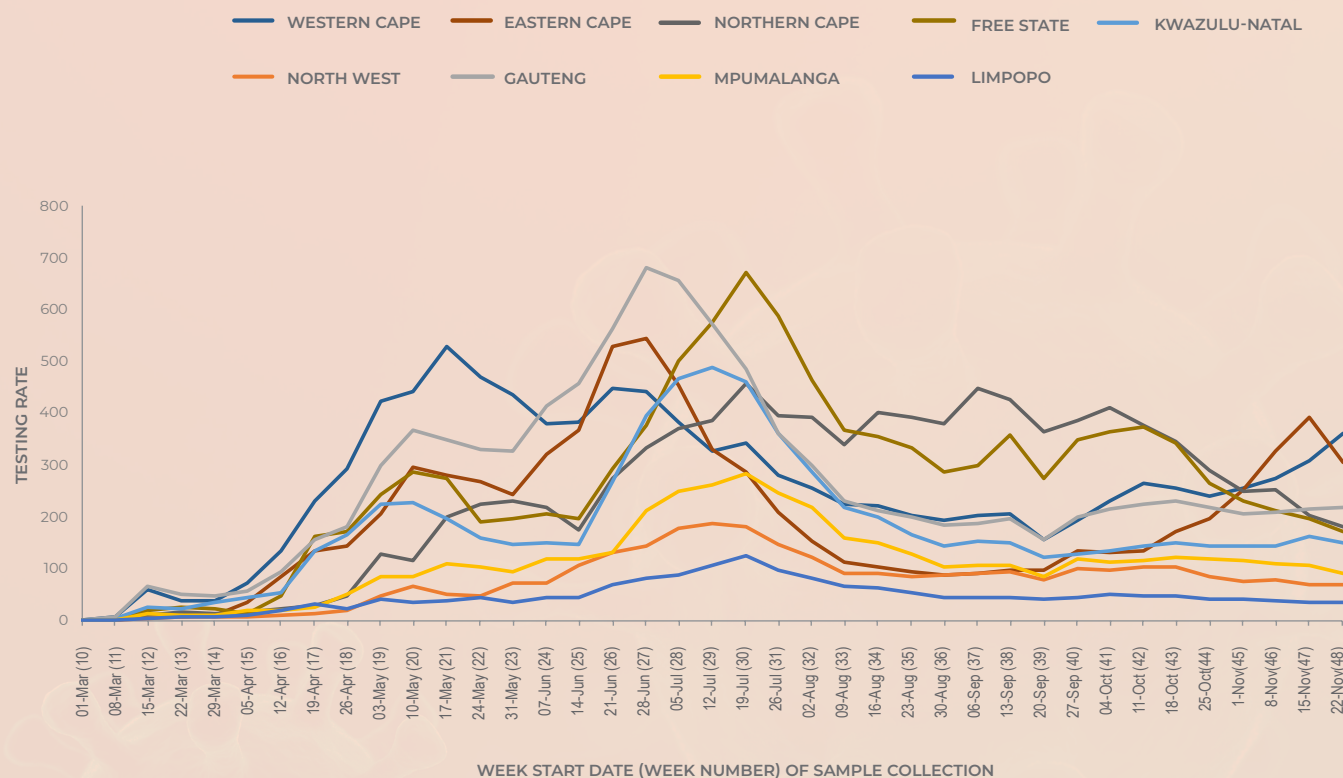


Figure 6. Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 1 March – 28 November 2020

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Table 3. Weekly number of tests performed and positive tests, by province, South Africa, 8-28 November 2020

Province	Population ^a	8-14 Nov		15-21 Nov		22-28 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	19142	2270 (11.9)	21575	3705 (17.2)	25271	5318 (21.0)	361	3.9%
Eastern Cape	6734001	22126	6981 (31.6)	26484	8929 (33.7)	20621	6644 (32.2)	306	-1.5%
Northern Cape	1292786	3248	302 (9.3)	2610	200 (7.7)	2334	162 (6.9)	181	-0.7%
Free State	2928903	6189	448 (7.2)	5750	292 (5.1)	5011	223 (4.5)	171	-0.6%
KwaZulu-Natal	11531628	16728	778 (4.7)	18617	1103 (5.9)	17451	1395 (8.0)	151	2.1%
North West	4108816	3206	337 (10.5)	2836	188 (6.6)	2859	150 (5.2)	70	-1.4%
Gauteng	15488137	32333	1222 (3.8)	33270	1394 (4.2)	33706	1632 (4.8)	218	0.7%
Mpumalanga	4679786	5111	392 (7.7)	4980	335 (6.7)	4233	247 (5.8)	90	-0.9%
Limpopo	5852553	2166	200 (9.2)	2080	138 (6.6)	2039	131 (6.4)	35	-0.2%
Unknown		2257	88 (3.9)	3050	174 (5.7)	3256	201 (6.2)		0.5%
Total	59622350	112506	13018 (11.6)	121252	16458 (13.6)	116781	16103 (13.8)	196	0.2%

^a 2020 Mid-year population Statistics SA

^b Current week compared to previous week

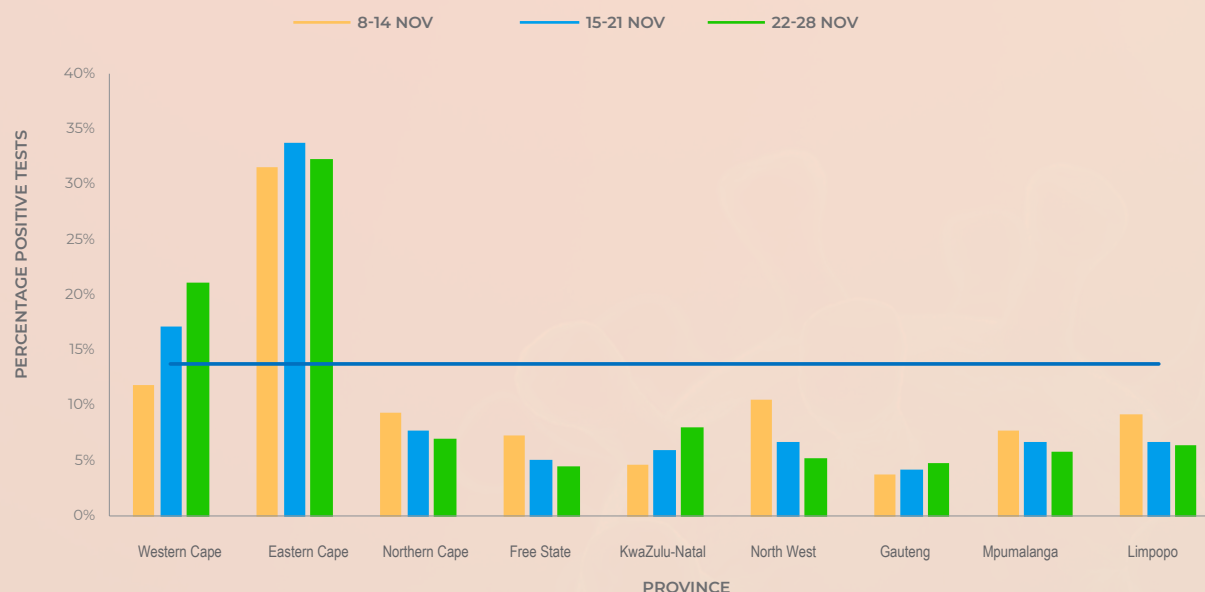


Figure 7. Weekly percentage testing positive, by province, South Africa, 8-28 November 2020. The horizontal blue line shows the national mean for week 48, beginning 22 November 2020.

Testing in the public sector

In the public sector, the percentage testing positive remained unchanged in the past week (16.6% in week 47 to 16.3% in week 48, $P=0.249$) (Table 4). The percentage testing positive in week 48 continued to

be highest in the Eastern Cape (28.5%) and Western Cape (26.5%). The percentage testing positive in the public sector remains higher than the national average, not weighted for population size, in the Western Cape and Eastern Cape 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, 8-28 November 2020

Province	8-14 Nov		15-21 Nov		22-28 Nov	
	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	7720	1228 (15.9)	9519	2084 (21.9)	11296	2998 (26.5)
Eastern Cape	14711	4425 (30.1)	18206	5781 (31.8)	12158	3465 (28.5)
Northern Cape	2053	194 (9.4)	1658	132 (8.0)	1294	106 (8.2)
Free State	3357	259 (7.7)	3086	167 (5.4)	2489	121 (4.9)
KwaZulu-Natal	9563	439 (4.6)	10572	586 (5.5)	9063	620 (6.8)
North West	1441	235 (16.3)	1187	116 (9.8)	958	79 (8.2)
Gauteng	10417	402 (3.9)	11084	524 (4.7)	10216	544 (5.3)
Mpumalanga	2041	203 (9.9)	2077	198 (9.5)	1333	115 (8.6)
Limpopo	737	104 (14.1)	771	63 (8.2)	726	51 (7.0)
Unknown	5	. (0.0)	110	6 (5.5)	136	3 (2.2)
Total	52045	7489 (14.4)	58270	9657 (16.6)	49669	8102 (16.3)

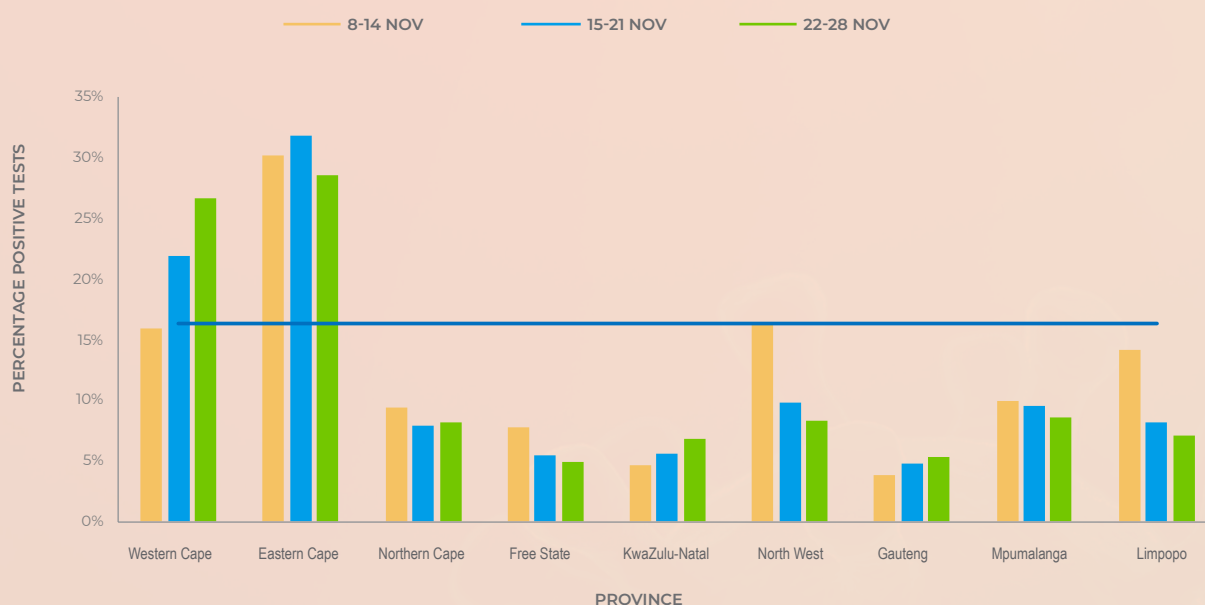


Figure 8. Weekly percentage testing positive in the public sector, by province, South Africa, 8-28 November 2020. The horizontal blue line shows the national mean for week 48, beginning 22 November 2020.

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 22-28 November, with the highest proportion testing positive nationally. This week's list is again dominated by facilities in the Eastern Cape (14) and Western Cape (9).

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Table 5. Public healthcare facilities with a high proportion testing positive, 22-28 November 2020

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Eastern Cape	36	0.694 (0.544;0.845)
Facility 2	Eastern Cape	36	0.694 (0.544;0.845)
Facility 3	Eastern Cape	29	0.655 (0.482;0.828)
Facility 4	Western Cape	34	0.647 (0.486;0.808)
Facility 5	Eastern Cape	61	0.623 (0.501;0.745)
Facility 6	Eastern Cape	45	0.600 (0.457;0.743)
Facility 7	KwaZulu-Natal	32	0.594 (0.424;0.764)
Facility 8	Western Cape	96	0.594 (0.496;0.692)
Facility 9	Western Cape	147	0.551 (0.471;0.631)
Facility 10	Western Cape	55	0.545 (0.414;0.677)
Facility 11	Western Cape	33	0.545 (0.376;0.715)
Facility 12	Western Cape	85	0.541 (0.435;0.647)
Facility 13	Western Cape	45	0.533 (0.388;0.679)
Facility 14	Eastern Cape	55	0.527 (0.395;0.659)
Facility 15	Eastern Cape	40	0.525 (0.370;0.680)
Facility 16	Northern Cape	25	0.520 (0.324;0.716)
Facility 17	Eastern Cape	63	0.508 (0.384;0.631)
Facility 18	Eastern Cape	73	0.507 (0.392;0.622)
Facility 19	Western Cape	36	0.500 (0.337;0.663)
Facility 20	Eastern Cape	49	0.490 (0.350;0.630)
Facility 21	Eastern Cape	45	0.489 (0.343;0.635)
Facility 22	Eastern Cape	45	0.489 (0.343;0.635)
Facility 23	Eastern Cape	25	0.480 (0.284;0.676)
Facility 24	Eastern Cape	25	0.480 (0.284;0.676)
Facility 25	Western Cape	170	0.471 (0.396;0.546)

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 22-28 November 2020 are shown in Table 6. Districts showing the greatest proportions testing positive are concentrated in the Eastern Cape (17 districts), with 6 in the Western Cape, and 1 each in KwaZulu-Natal and the Northern Cape.

Nine districts showed a proportion testing positive greater than 40%, and 13 greater than 30%. A significant increase over the week was observed in six of the 25 districts – Intsika Yethu, Makana, Mnquma, and Lukanji in the Eastern Cape, and Beaufort West and Witzenberg in the Western Cape. Significant decreases were observed in Mhlontlo and Nelson Mandela Bay subdistrict C in the Eastern Cape, and in Knysna in the Western Cape.

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Table 6. Health ssb-districts with the highest proportion testing positive based on public sector data for the week of 22-28 November 2020

Health district or sub-district	Province	PTP (95% CI)	Previous week
Bitou	Western Cape	0.520 (0.459-0.582)	0.484 (0.426-0.543)
Intsika Yethu	Eastern Cape	0.481 (0.381-0.581)	0.277 (0.184-0.370)
Beaufort West	Western Cape	0.465 (0.360-0.570)	0.213 (0.113-0.314)
Kou-Kamma	Eastern Cape	0.449 (0.349-0.549)	0.325 (0.273-0.377)
Nkonkobe	Eastern Cape	0.445 (0.381-0.509)	0.346 (0.283-0.409)
Makana	Eastern Cape	0.440 (0.359-0.522)	0.325 (0.293-0.358)
Mhlontlo	Eastern Cape	0.440 (0.381-0.498)	0.638 (0.529-0.747)
Knysna	Western Cape	0.418 (0.382-0.453)	0.519 (0.479-0.560)
George	Western Cape	0.416 (0.389-0.443)	0.467 (0.436-0.498)
Mnquma	Eastern Cape	0.347 (0.285-0.409)	0.212 (0.173-0.250)
Mossel Bay	Western Cape	0.340 (0.306-0.374)	0.338 (0.300-0.376)
Greater Kokstad	KwaZulu-Natal	0.325 (0.199-0.451)	0.173 (0.075-0.272)
Lukanji	Eastern Cape	0.325 (0.275-0.375)	0.198 (0.146-0.250)
Witzenberg	Western Cape	0.325 (0.252-0.398)	0.161 (0.088-0.233)
Ubuntu	Northern Cape	0.324 (0.226-0.423)	0.336 (0.250-0.423)
Amahlathi	Eastern Cape	0.313 (0.261-0.364)	0.332 (0.288-0.376)
King Sabata Dalindyebo	Eastern Cape	0.312 (0.257-0.367)	0.237 (0.185-0.288)
Ndlambe	Eastern Cape	0.310 (0.250-0.369)	0.367 (0.330-0.404)
Blue Crane Route	Eastern Cape	0.309 (0.265-0.353)	0.254 (0.212-0.296)
Buffalo City	Eastern Cape	0.307 (0.281-0.333)	0.271 (0.251-0.290)
Mbhashe	Eastern Cape	0.305 (0.253-0.356)	0.318 (0.231-0.406)
Nelson Mandela Bay C	Eastern Cape	0.302 (0.282-0.322)	0.361 (0.345-0.378)
Nxuba	Eastern Cape	0.296 (0.211-0.381)	0.324 (0.236-0.411)
Camdeboo	Eastern Cape	0.282 (0.242-0.321)	0.337 (0.310-0.364)
Kouga	Eastern Cape	0.279 (0.238-0.320)	0.330 (0.297-0.363)

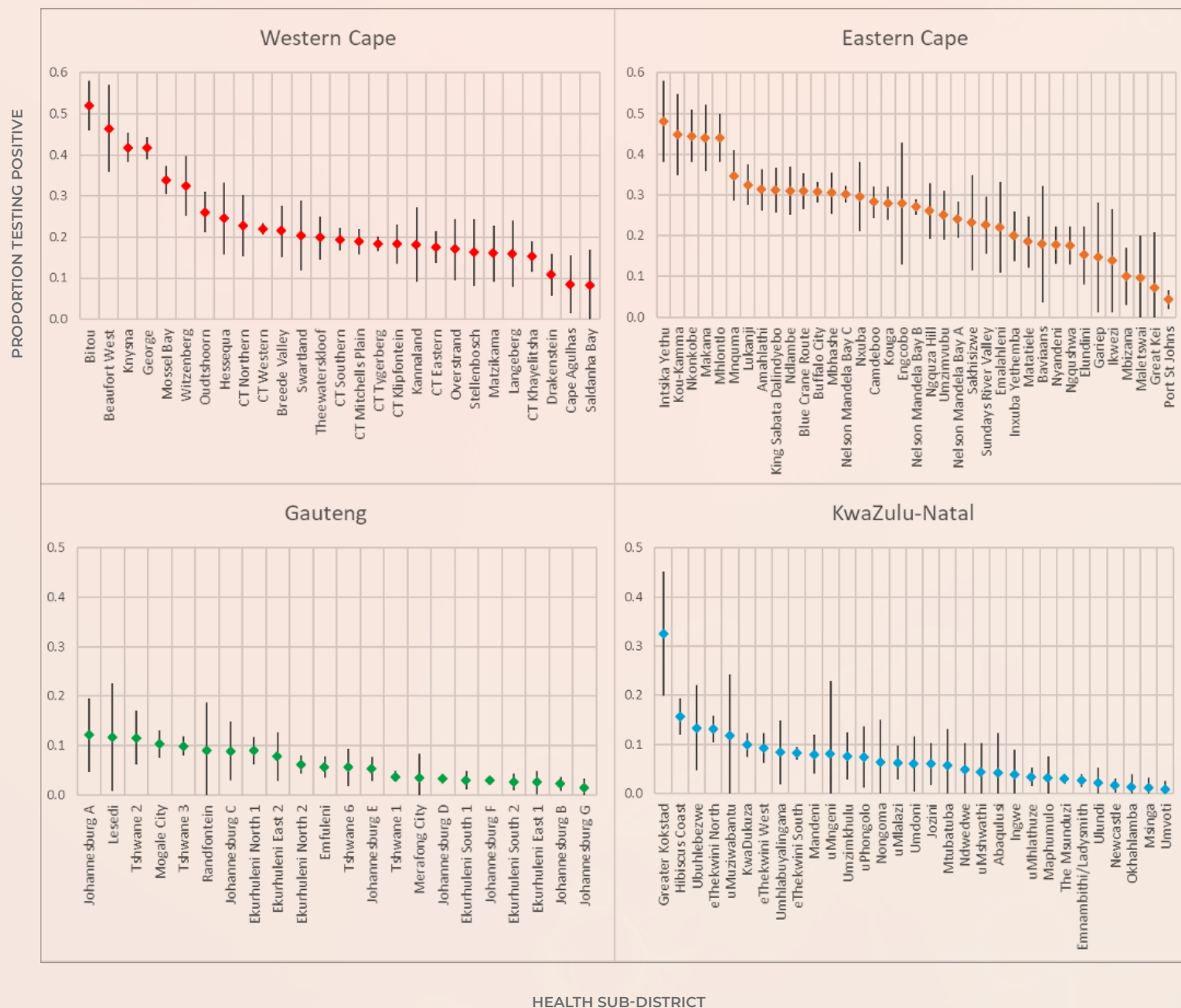
95% CI: 95% confidence interval; PTP: adjusted positive test proportion; PTP marked in red or blue have current week proportions testing positive that are significantly higher or lower than the previous week, respectively.

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 22-28 November 2020.

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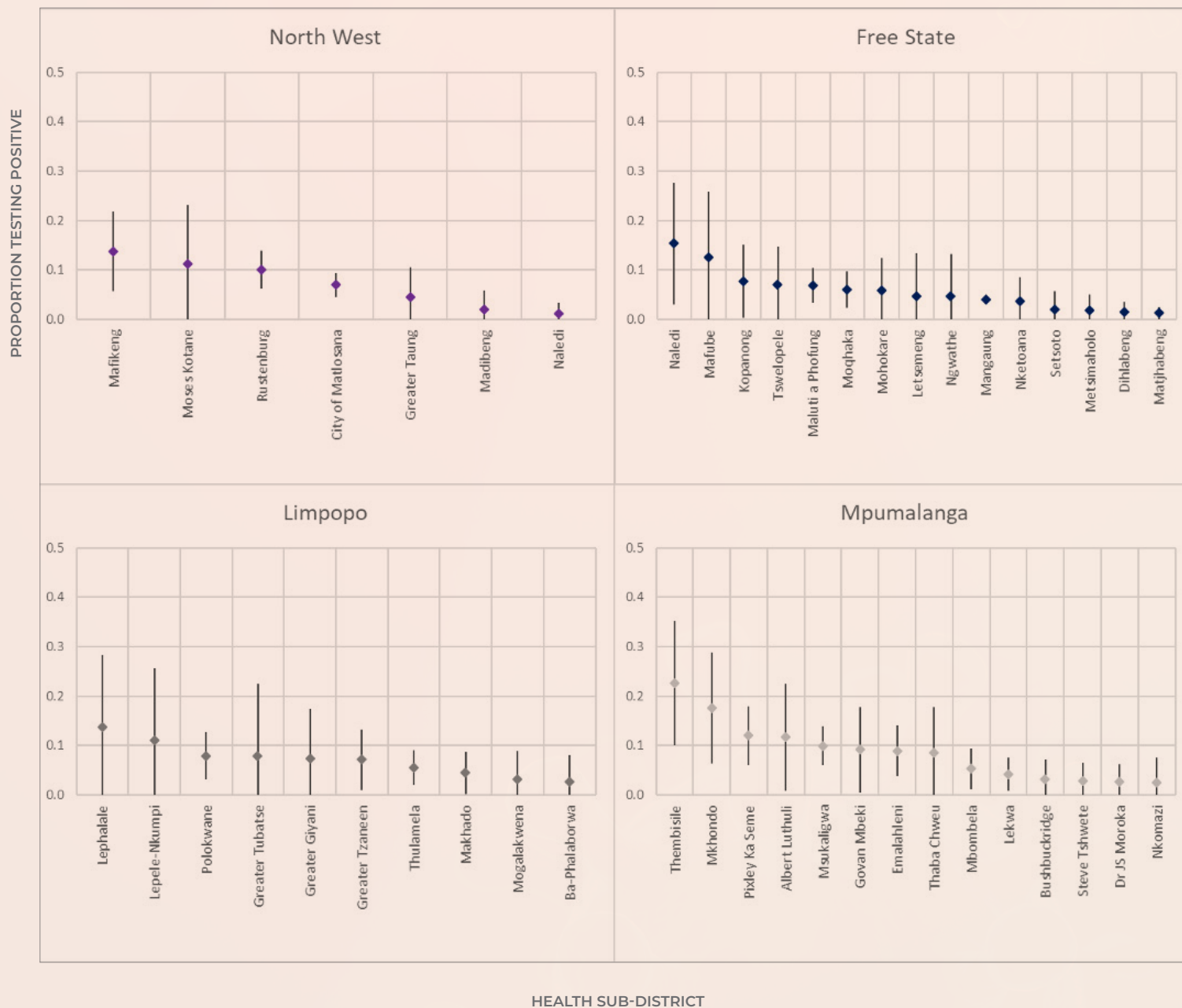


Figure 9. Proportions testing positive by health sub-districts in Western Cape, Eastern Cape, Gauteng, KwaZulu-Natal, North West, Free State, Limpopo, Mpumalanga and Northern Cape provinces based on public sector data for the week of 22-28 November 2020.

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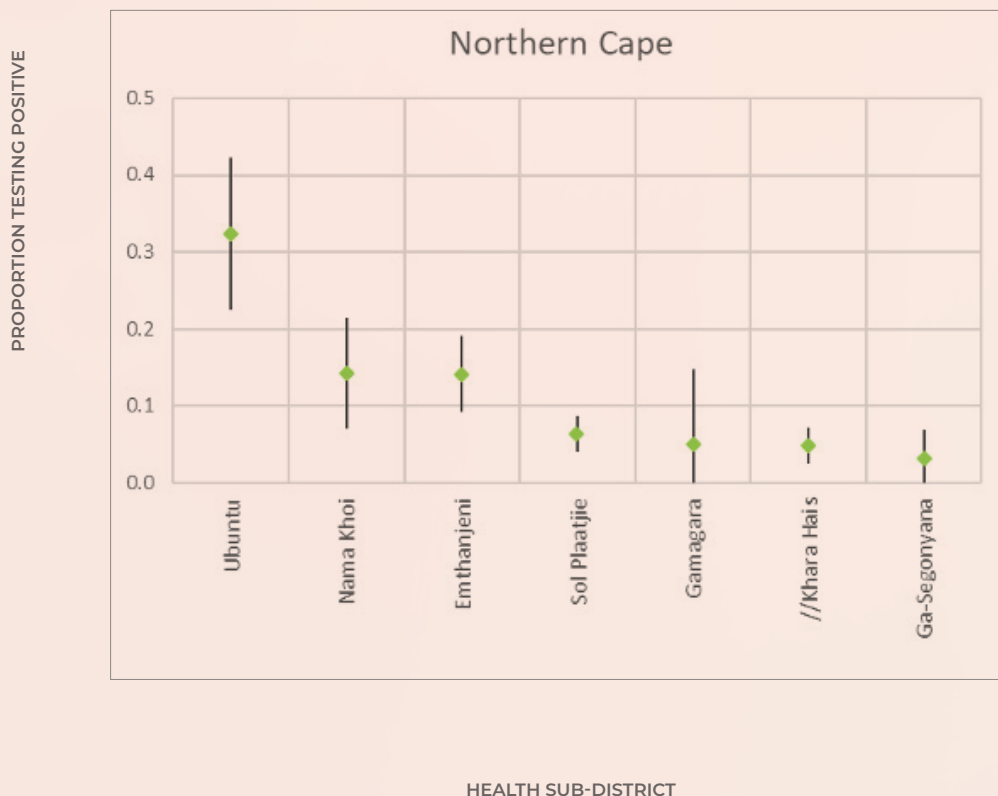


Figure 9. Proportions testing positive by health sub-districts in Western Cape, Eastern Cape, Gauteng, KwaZulu-Natal, North West, Free State, Limpopo, Mpumalanga and Northern Cape provinces based on public sector data for the week of 22-28 November 2020.

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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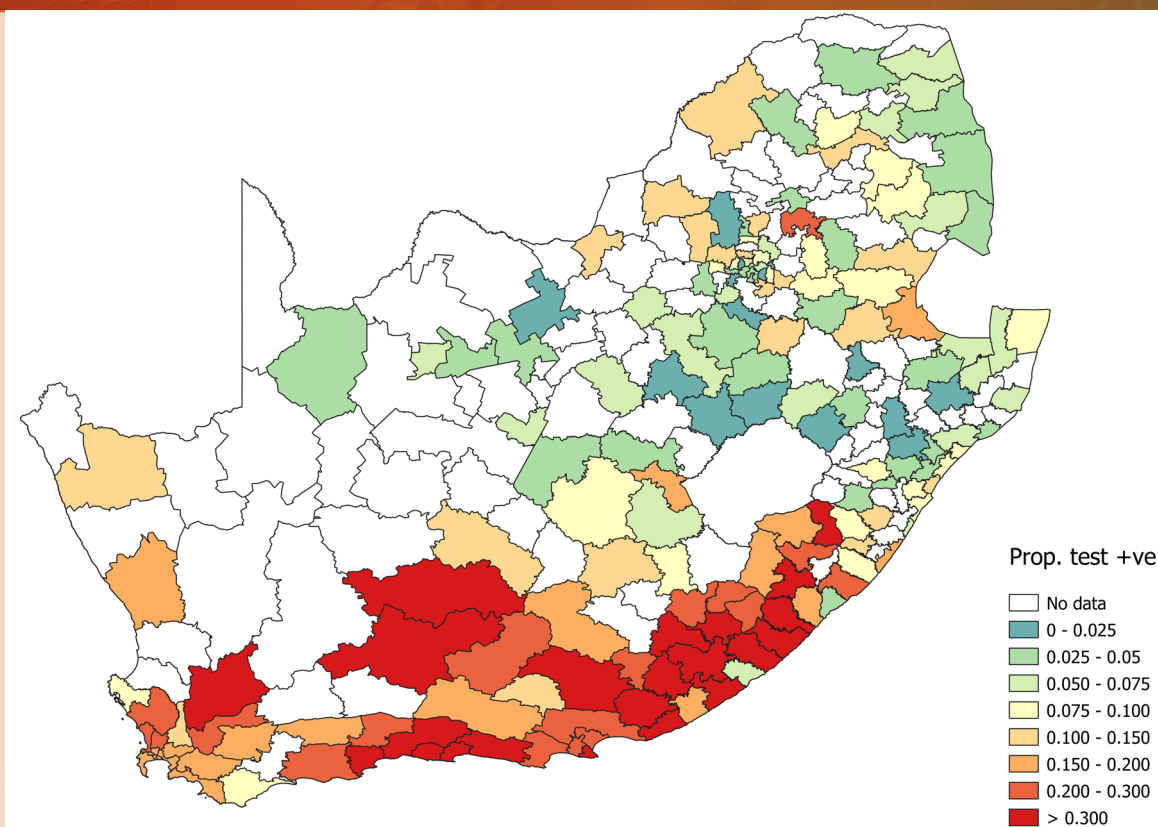


Figure 10. Proportion testing positive by health sub-district based on public sector data for the week of 22-28 November 2020, South Africa. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

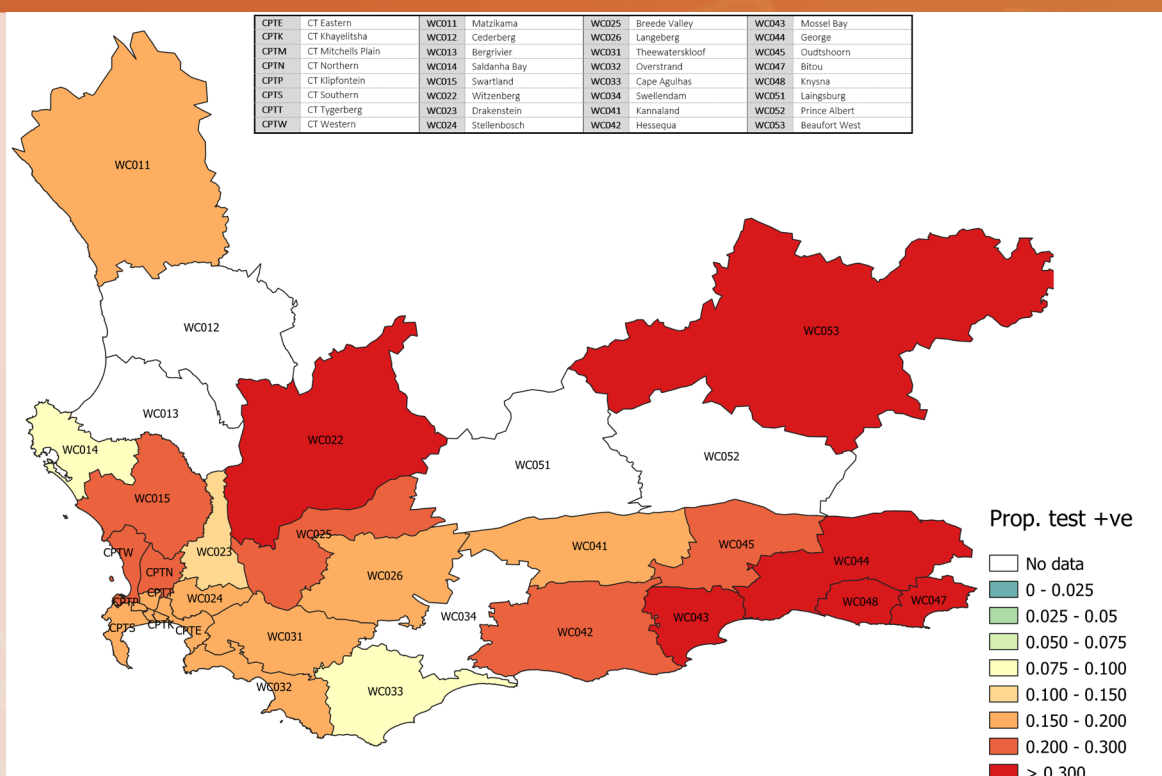


Figure 11. Health sub-districts in the Western Cape province with a high proportion testing positive based on public sector data for the week of 22-28 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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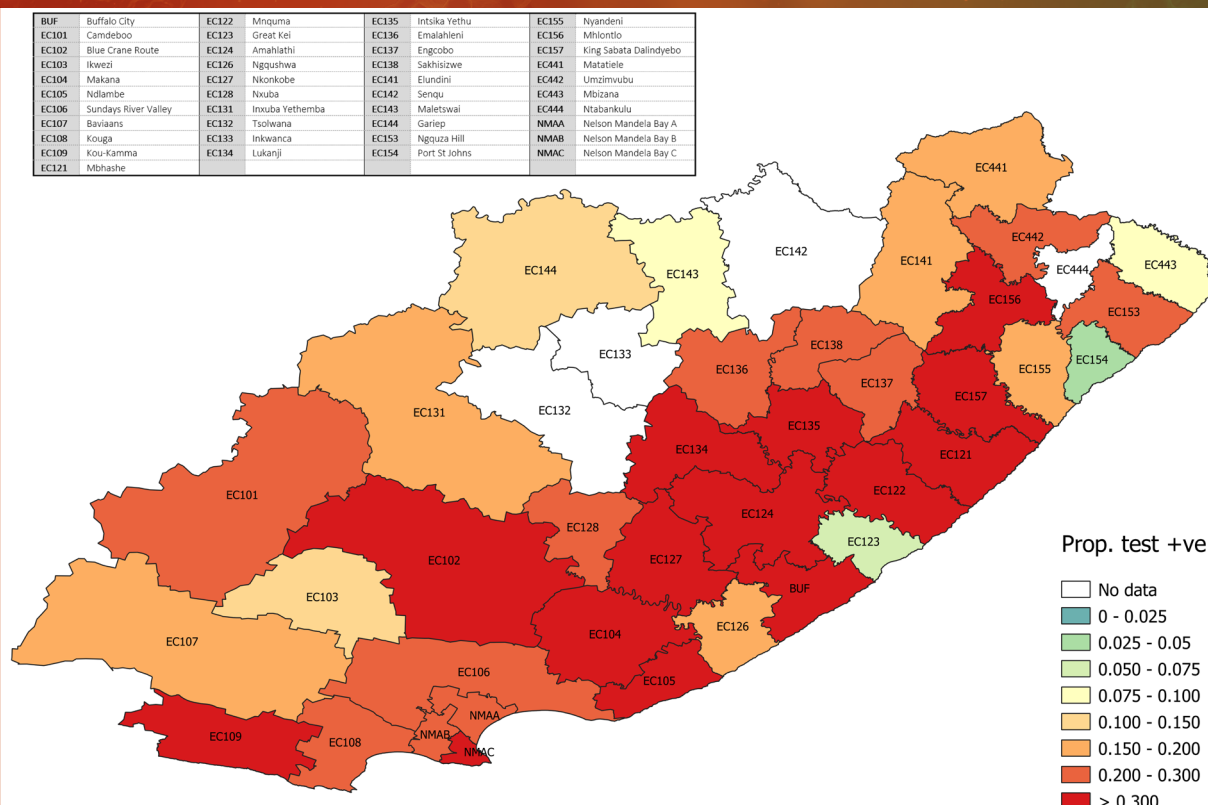


Figure 12. Health sub-districts in the Eastern Cape province with a high proportion testing positive based on public sector data for the week of 22-28 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

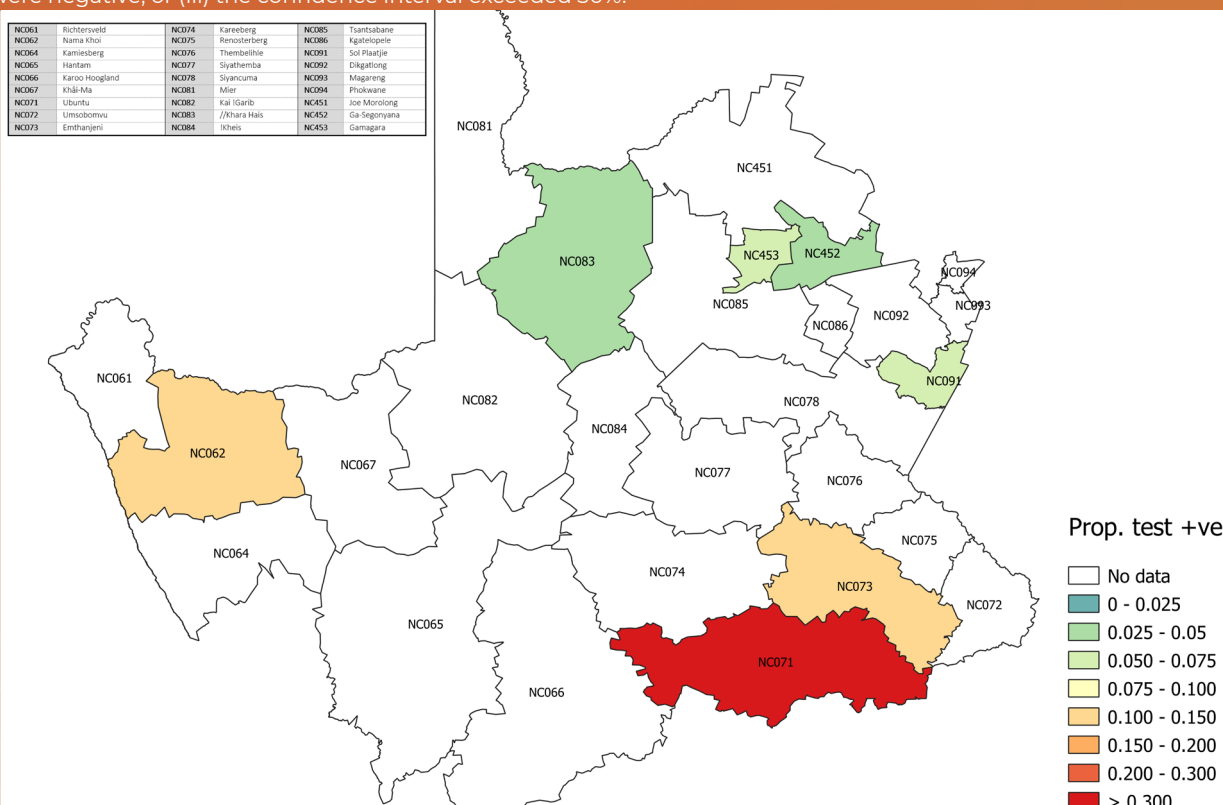


Figure 13. Health sub-districts in Northern Cape Province with a high proportion testing positive based on public sector data for the week of 22-28 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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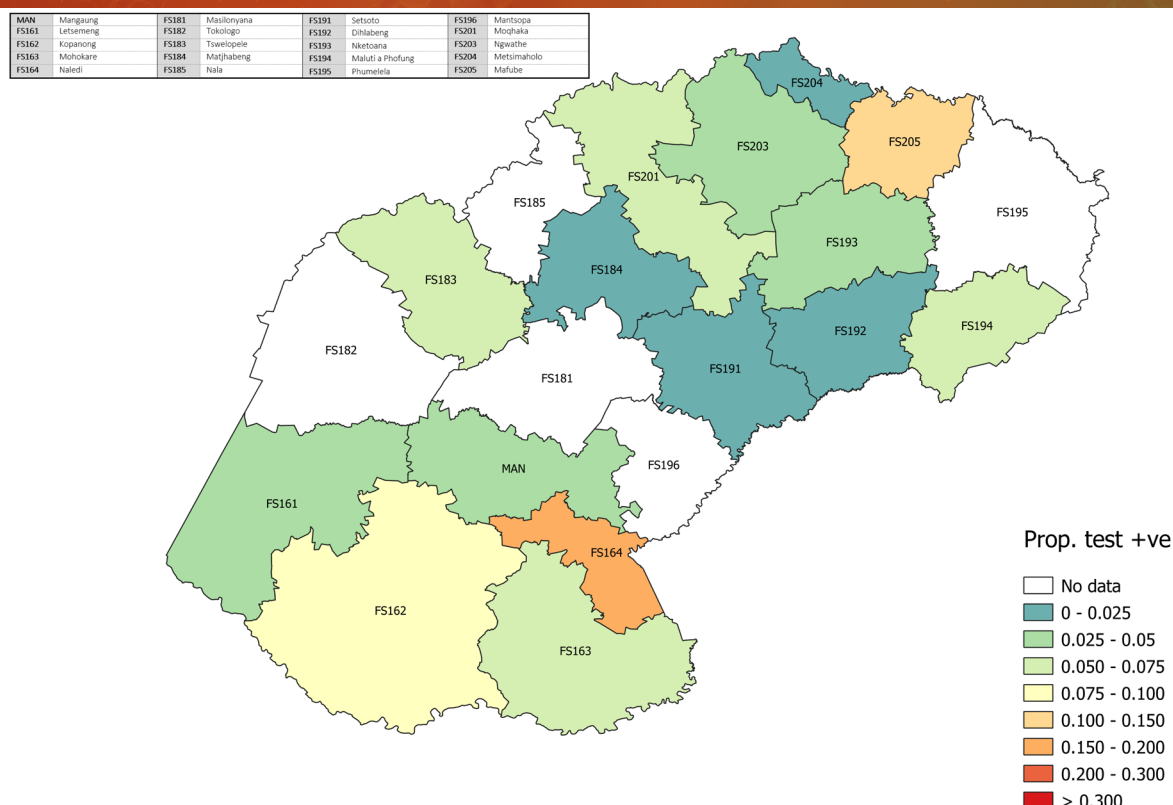


Figure 14. Health sub-districts in Free State Province with a high proportion testing positive based on public sector data for the week of 22-28 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

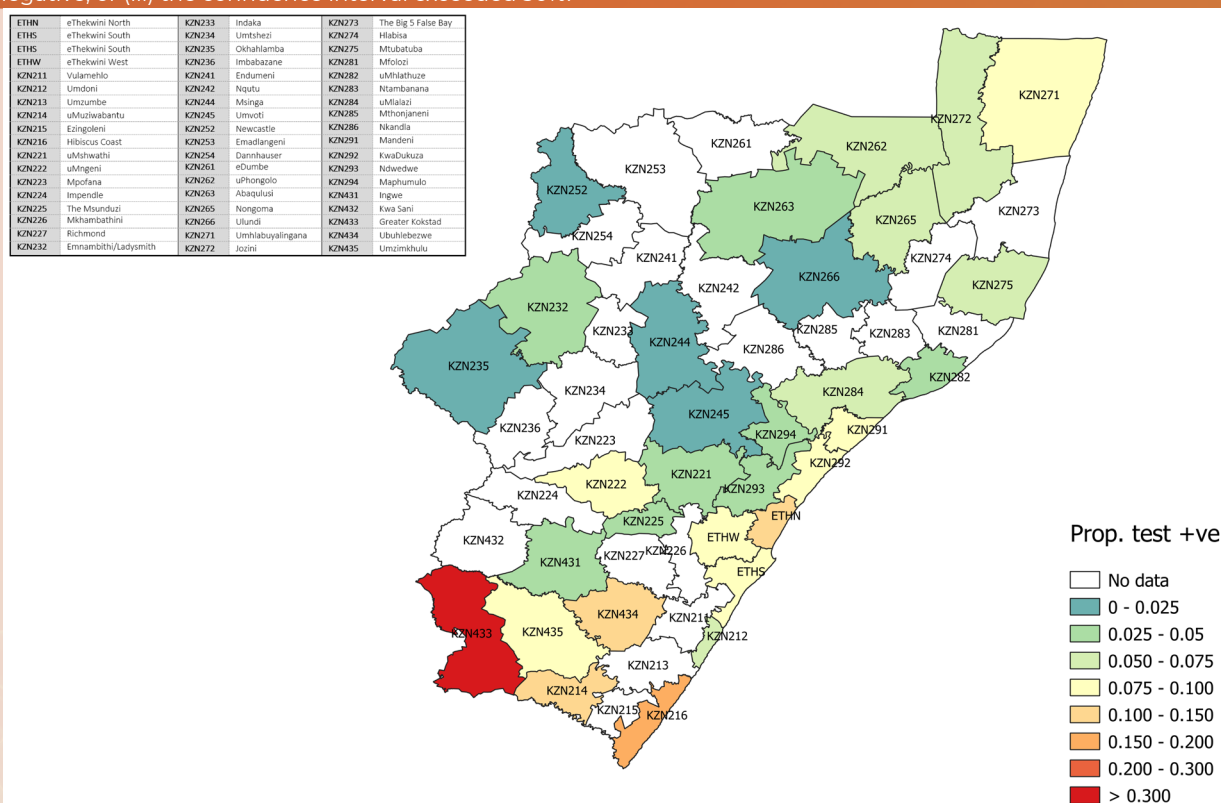


Figure 15. Health sub-districts in KwaZulu-Natal Province with a high proportion testing positive based on public sector data for the week of 22-28 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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NW371	Moretele	NW383	Mafikeng	NW396	Lekwa-Teemane
NW372	Madibeng	NW384	Ditsobotla	NW397	Kagisano/Molopo
NW373	Rustenburg	NW385	Ramotshere Molloa	NW401	Ventersdorp
NW374	Kgetlengrivier	NW392	Naledi	NW402	Tlokwe City Council
NW375	Moses Kotane	NW393	Mamusa	NW403	City of Matlosana
NW381	Ratou	NW394	Greater Taung	NW404	Maquass Hills
NW382	Tswaing				

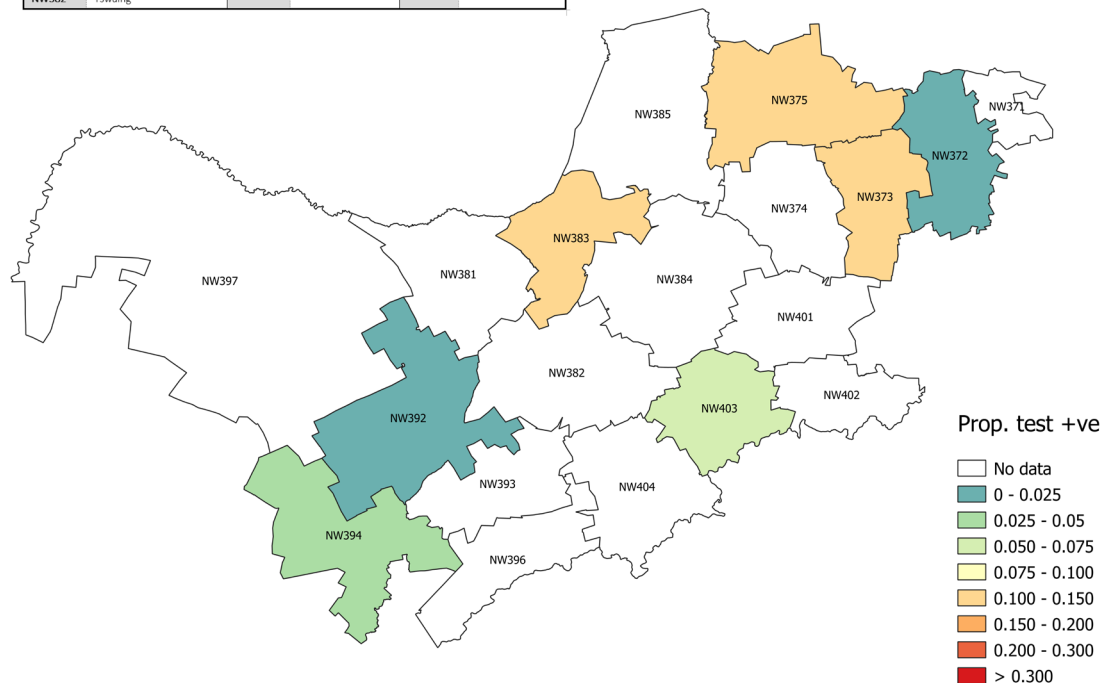


Figure 16. Health sub-districts in North West Province with a high proportion testing positive based on public sector data for the week of 22-28 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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

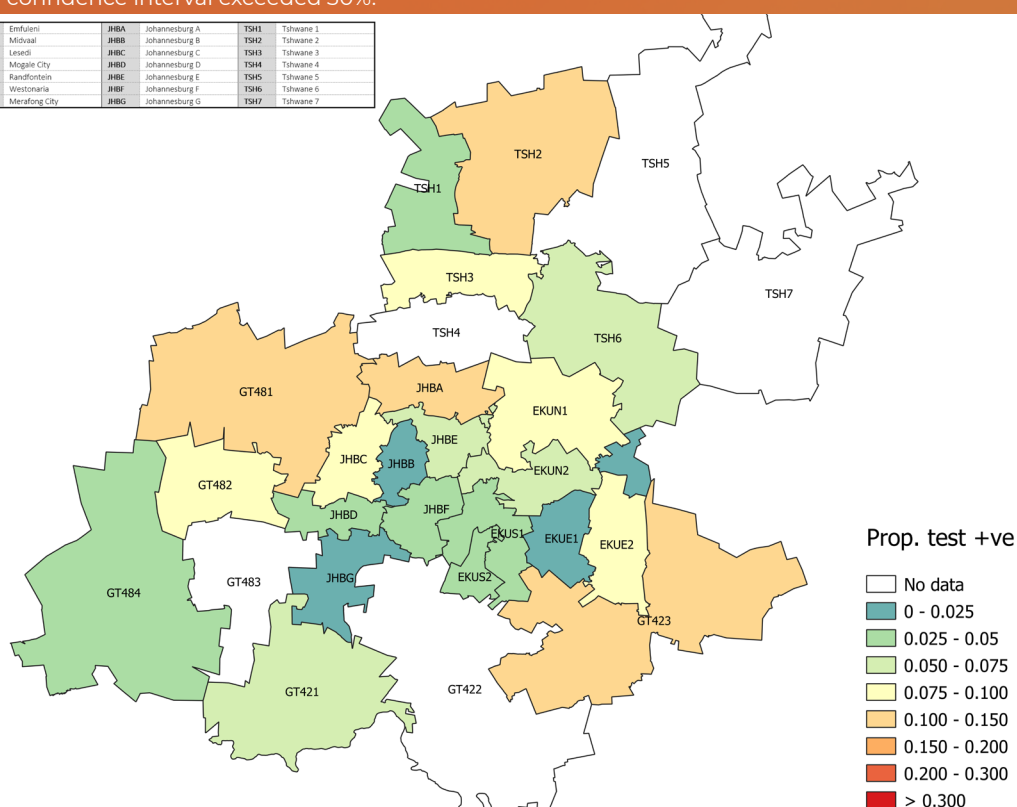


Figure 17. Health sub-districts in Gauteng Province with a high proportion testing positive based on public sector data for the week of 22-28 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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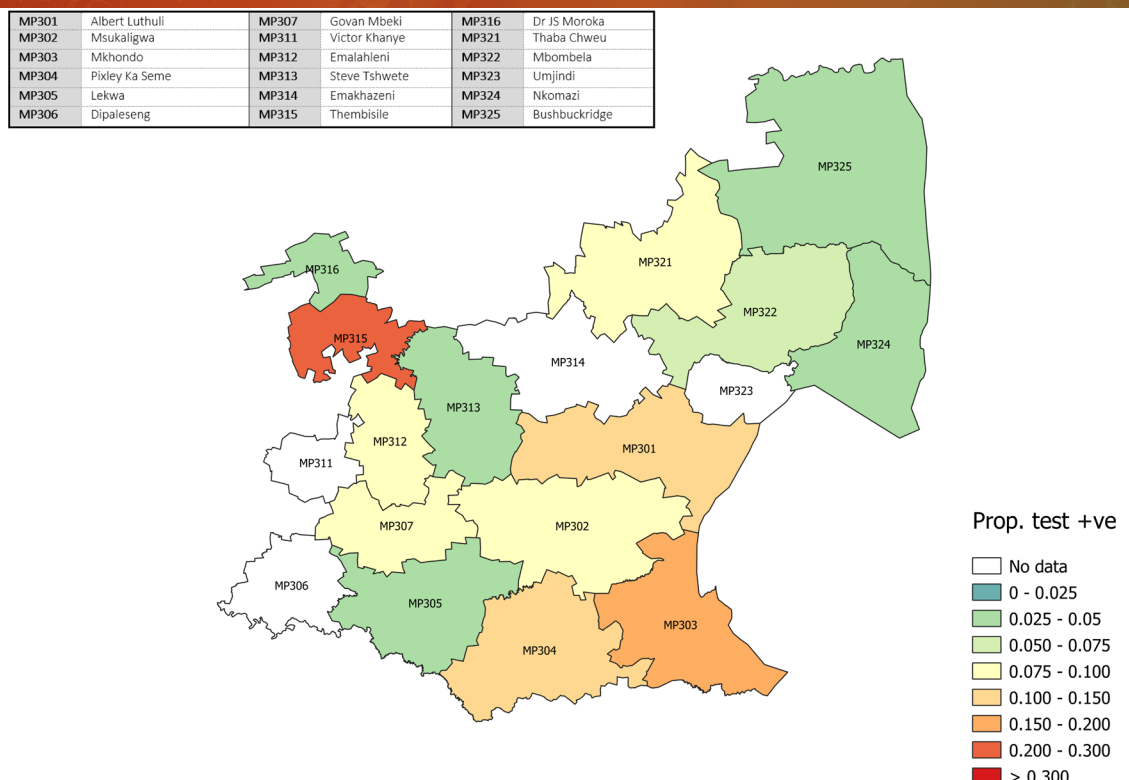


Figure 18. Health sub-districts in Mpumalanga Province with a high proportion testing positive based on public sector data for the week of 22-28 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

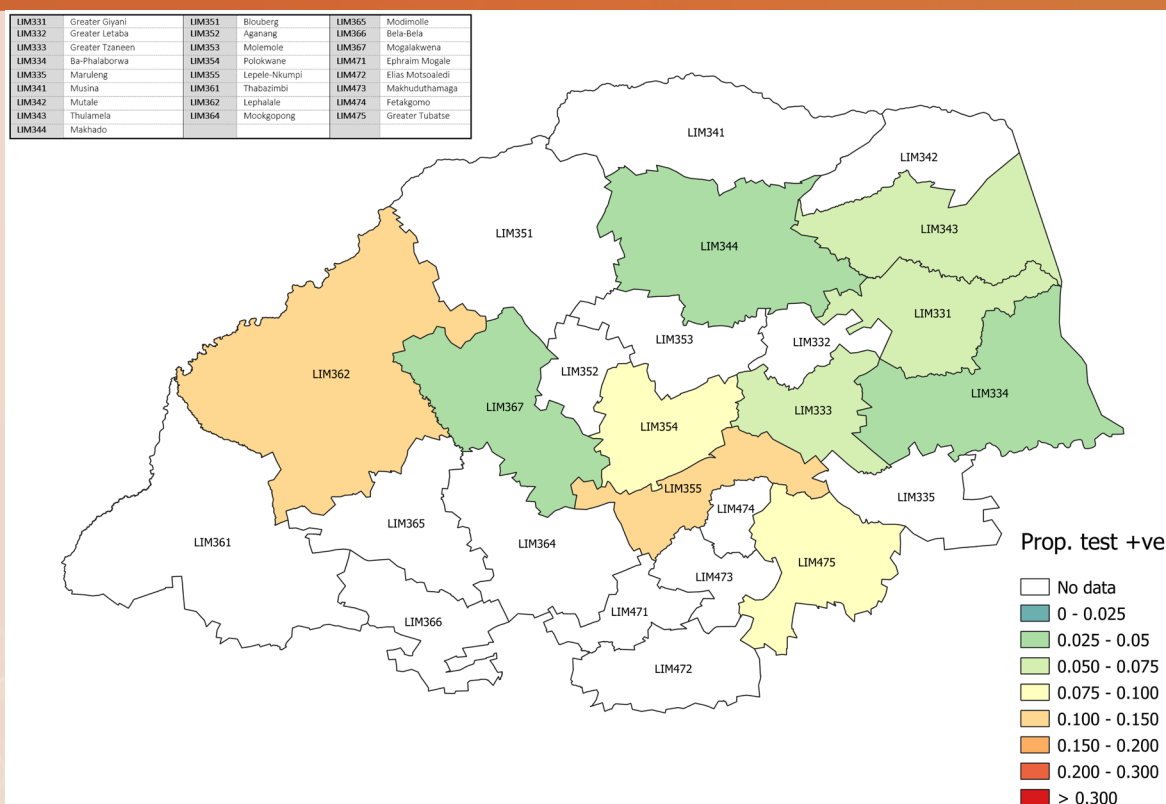


Figure 19. Health sub-districts in Limpopo Province with a high proportion testing positive based on public sector data for the week of 22-28 November 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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Testing by patient admission status

In week 48, 38.1% of tests in the public sector were performed for hospitalised patients (Figure 20). The proportion of inpatient tests was highest in Northern Cape (64.8%), Limpopo (63.5%) and KwaZulu-Natal (56.1%) provinces. Comparing week 48 to the previous week, the proportion of inpatient tests increased

by 27.5% in Limpopo and by 16.5% in the Northern Cape. The percentage testing positive in week 48 remained lower among inpatients (13.5%) compared to outpatients (19.7%) (Figure 21). In the public sector in week 48 the mean laboratory turnaround time continued to be lower for inpatients (1.8 days) compared to outpatients (2.6 days) (Figure 22).

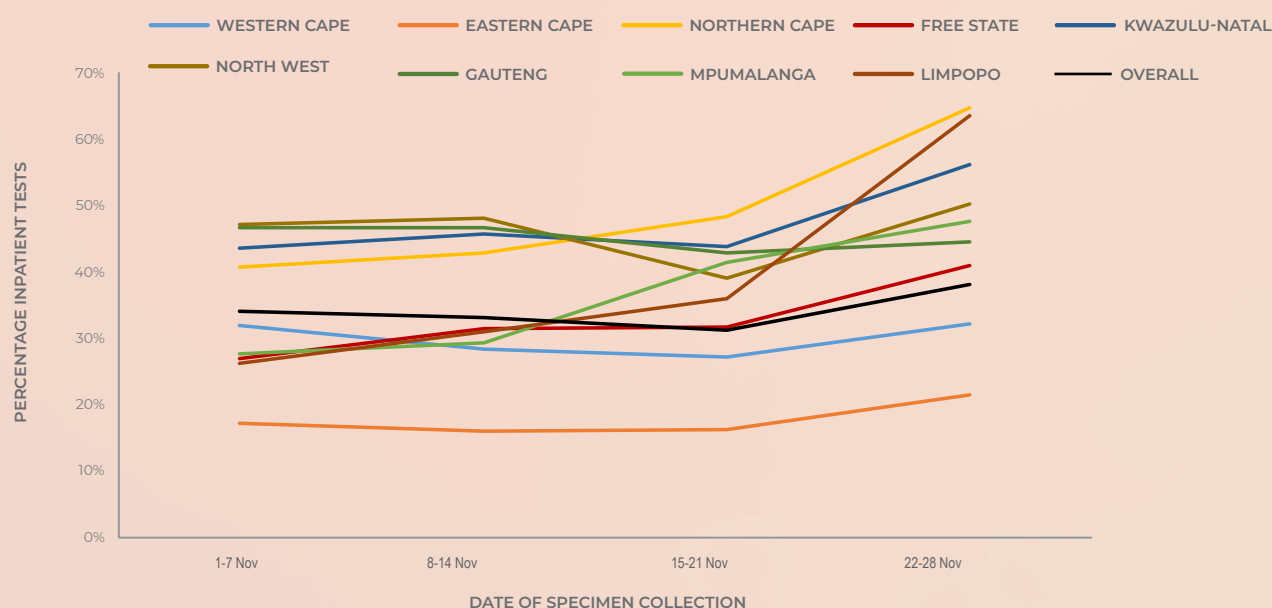


Figure 20. Percentage of inpatient tests performed in the public sector by province, 1-28 November 2020

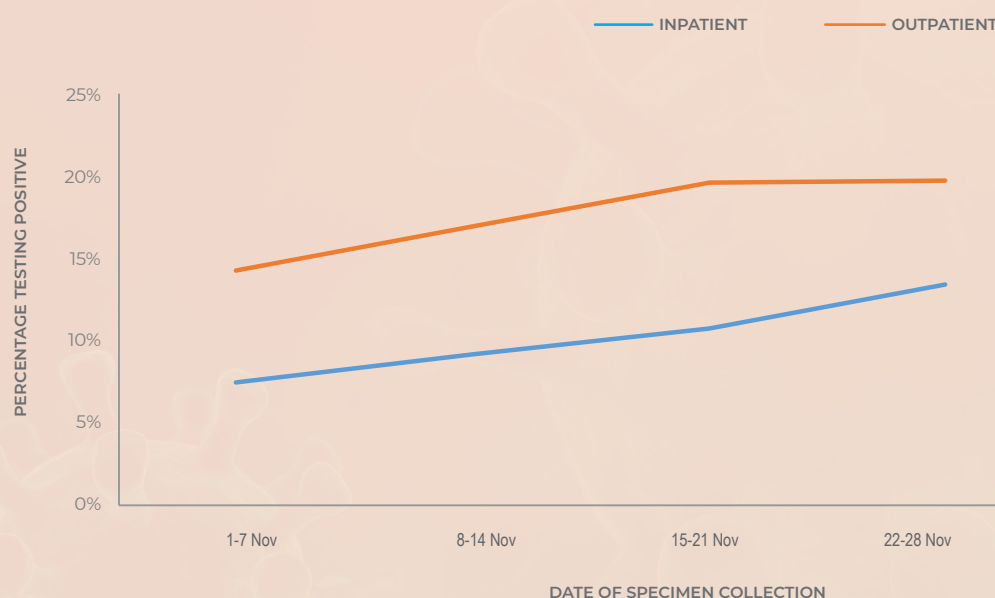


Figure 21. Percentage testing positive by patient admission status in the public sector, 1-28 November 2020

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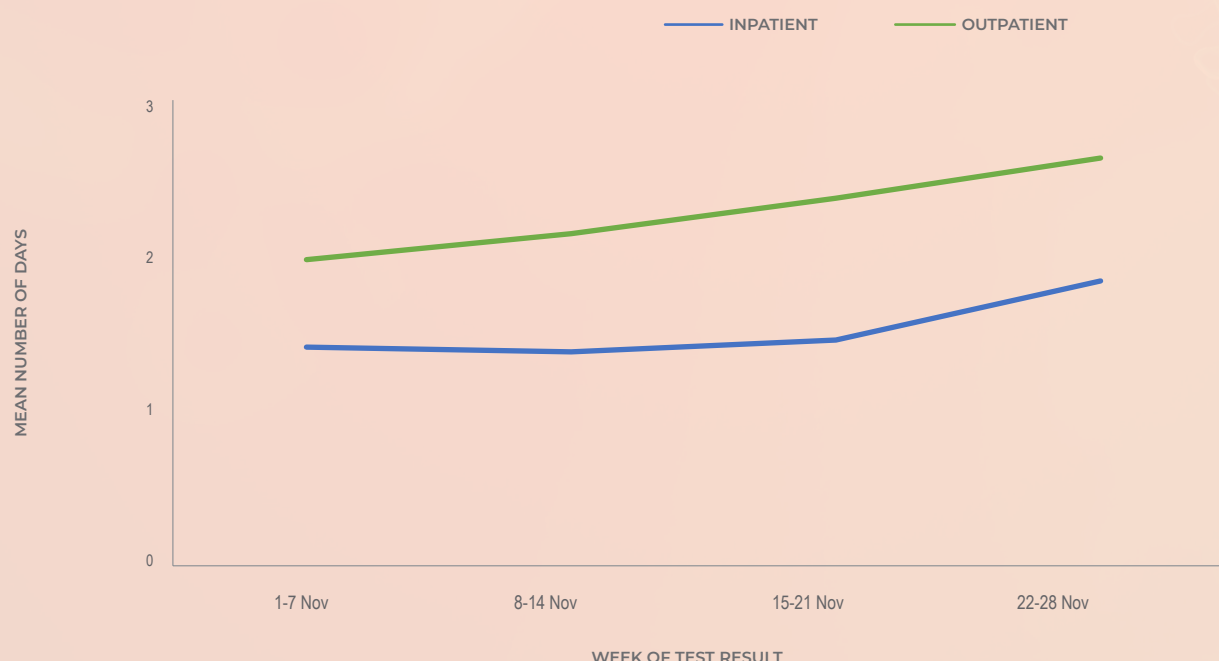


Figure 22. Mean number of days between date of specimen collection and date of test result, by patient admission status and date of test result in the public sector, South Africa, 1-28 November 2020

Testing by age and sex

The mean age of individuals tested in week 48 was 39.1 years, similar to the previous weeks. The mean age of individuals with a positive test in week 48 was 41.8 years, also similar to previous weeks. The mean age of individuals with a positive test in week 48 did not differ between males (41.9 years) and females (41.8 years,

$P=0.818$) (Table 7). The sex ratio (the number of males per 100 females) of individuals with a positive test in week 48 was 75.8. In both sexes the proportion testing positive in week 48 was higher than or similar to the previous week in age groups ≥ 20 years, whereas the proportion testing positive was lower in the past week in age groups <20 years (Figure 23).

Table 7. Mean age and sex ratio of individuals tested, South Africa, 1-28 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
45	1 November	39.0	39.4	40.3	40.8	89.9	76.5
46	8 November	38.8	39.3	41.5	41.5	87.6	74.3
47	15 November	38.8	39.4	41.2	41.3	88.1	71.8
48	22 November	38.8	39.5	41.9	41.8	89.4	75.8

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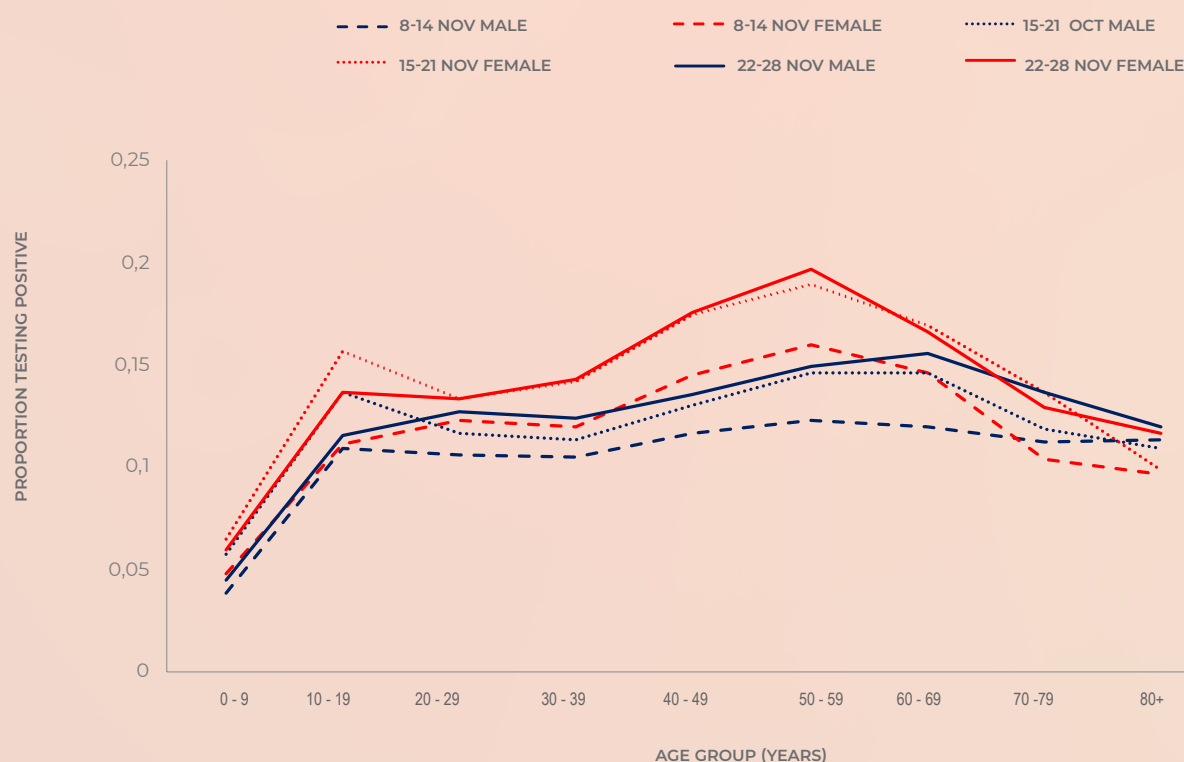


Figure 23. Weekly proportion testing positive by age group and sex, South Africa, 8-28 November 2020

From week 45 to week 48, the percentage testing positive increased by 3.5% in males (from 9.1% to 12.6%) and increased by 4.2% in females (from 10.7% to 14.9%) (Table 8). In week 48 the percentage testing

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

Table 8. Percentage testing positive by sex and week, South Africa, 1-28 November 2020

Age (years)	1-7 Nov		8-14 Nov		15-21 Nov		22-28 Nov	
	Male	Female	Male	Female	Male	Female	Male	Female
0-19	6.9%	8.2%	7.2%	8.4%	9.5%	11.5%	8.0%	10.4%
20-39	9.5%	10.5%	10.5%	12.1%	11.4%	13.8%	12.5%	13.8%
40-59	9.9%	12.9%	11.9%	15.2%	13.7%	18.1%	14.2%	18.5%
60-69	9.7%	11.2%	11.9%	14.6%	14.6%	16.9%	15.5%	16.6%
70+	8.0%	8.2%	11.2%	10.1%	11.6%	12.4%	13.2%	12.5%
Total	9.1%	10.7%	10.6%	12.5%	12.1%	14.9%	12.6%	14.9%

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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.

CONCLUSIONS

Weekly testing volumes peaked in week 28, and subsequently decreased. The number of tests performed in week 48 were similar to the previous few weeks. Gauteng (28.9%), Western Cape (21.6%), Eastern Cape (17.7%) and KwaZulu-Natal (14.9%) provinces performed the majority of tests in the past week. Western Cape (361 per 100,000 persons) and Eastern Cape (306 per 100,000 persons) provinces had the highest testing rates in week 48. The overall laboratory turnaround time in week 48 was 1.9 days; 2.2 days in the public sector and 1.7 days in the private sector.

The percentage testing positive decreased from a peak of 30.5% in week 29 to 9.5% in week 43. In week 48 the percentage testing positive was 13.8%, higher than has been observed in the previous 12 weeks. The percentage testing positive remained highest in the Eastern Cape (32.2%) and Western Cape (21.0%). Percentages testing positive were <10% in Northern Cape, Free State, North West, Gauteng, KwaZulu-Natal, Mpumalanga and Limpopo. In week 48, compared to the previous week, the percentage testing positive increased in the Western Cape, KwaZulu-Natal and Gauteng. The percentage testing positive decreased in the Eastern Cape and North West, and did not change in Northern Cape, Free State, Mpumalanga and Limpopo. Of the 25 districts with the highest proportions testing positive in week 48, 17 were in the Eastern Cape, 6 in the Western Cape, and 1 each in KwaZulu-Natal and the Northern Cape.