

COVID-19 TESTING SUMMARY



NATIONAL INSTITUTE FOR
COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 50 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 12 December 2020 (Week 50 of 2020).

HIGHLIGHTS

- In the period 1 March 2020 through 12 December 2020, 4,907,776 laboratory tests for SARS-CoV-2 have been conducted nationally
- The number of tests performed in week 50 were higher than the weekly number of tests performed since week 32 (beginning 2 August)
- Western Cape (582 per 100,000 persons), Gauteng (365 per 100,000 persons), Eastern Cape (358 per 100,000 persons), and KwaZulu-Natal (343 per 100,000 persons) provinces had the highest testing rates in week 50
- Percentage testing positive decreased from a peak of 30.4% in week 29 to 9.5% in week 43. In week 50 the percentage testing positive was 21.9%, higher than has been observed since week 33 (beginning 9 August)
- Percentage testing positive remained highest in the Eastern Cape (34.6%), Western Cape (31.2%), and KwaZulu-Natal (24.5%). Percentages testing positive were between 10-19% in North West, Limpopo and Gauteng, and were <10% in Northern Cape, Free State, and Mpumalanga.
- In week 50, compared to the previous week, the percentage testing positive increased in the Western Cape, Eastern Cape, Free State, KwaZulu-Natal, North West, Gauteng, Mpumalanga, and Limpopo, and did not change in Northern Cape.
- Mean laboratory turnaround time in week 50 was 1.5 days; 2.4 days in the public sector and <1 day 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. Testing for SARS-CoV-2 using rapid antigen-based tests was implemented during November 2020.

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 onwards, test data was reported from the Notifiable Medical Conditions Surveillance System (NMCCS). 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 12 December 2020 (week 50).

Testing volumes and proportion testing positive

From 1 March through 12 December 2020, 4,907,776 laboratory tests for SARS-CoV-2 were performed. The number of tests performed increased to week 20, however decreased in weeks 21 to 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=268,773), and have subsequently decreased. In week 50, 182,448 tests were performed, higher than the weekly number of tests performed since week 32. 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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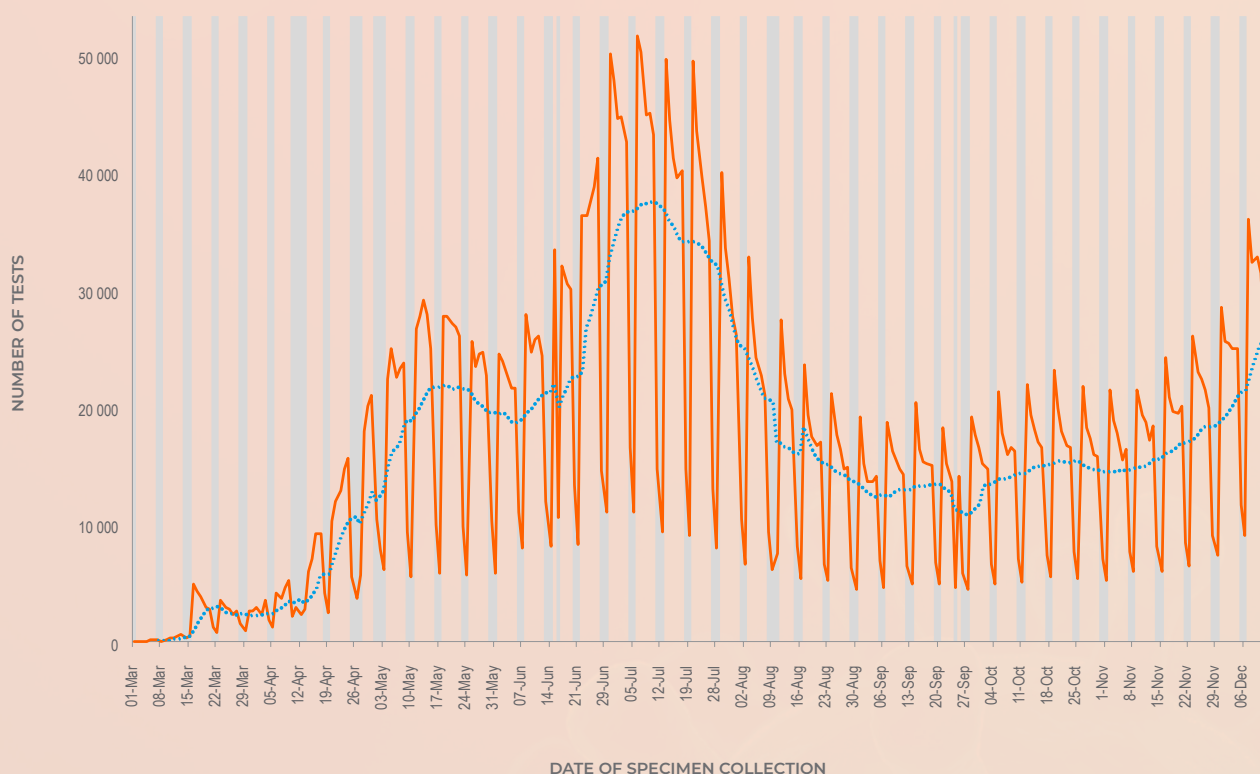


Figure 1. Number of laboratory tests conducted by date of specimen collection, South Africa, 1 March – 12 December 2020. Blue dotted line shows the 7-day moving average of the number of tests conducted. Grey bars highlight weekend days and public holidays.

The overall percentage testing positive from week 10 through 50 was 16.2% (Table 1). The percentage testing positive increased week on week from week 18 to a peak of 30.4% in week 29, and subsequently decreased to 9.5% in week 43. The percentage testing positive in week 50 was 21.9%, higher than has been observed since week 33 (beginning 9 August) (Figure 2).

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Table 1. Weekly number of tests conducted and positive tests, South Africa, 1 March – 12 December 2020

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)
10	01-Mar	409 (0.0)	8	2.0
11	08-Mar	2275 (0.0)	71	3.1
12	15-Mar	20899 (0.4)	654	3.1
13	22-Mar	16811 (0.3)	408	2.4
14	29-Mar	17184 (0.4)	374	2.2
15	05-Apr	24478 (0.5)	521	2.1
16	12-Apr	41616 (0.8)	980	2.4
17	19-Apr	75588 (1.5)	1851	2.4
18	26-Apr	89222 (1.8)	2778	3.1
19	03-May	136341 (2.8)	5283	3.9
20	10-May	156582 (3.2)	7119	4.5
21	17-May	155793 (3.2)	10037	6.4
22	24-May	141068 (2.9)	11013	7.8
23	31-May	135398 (2.8)	12737	9.4
24	07-Jun	153124 (3.1)	18760	12.3
25	14-Jun	162595 (3.3)	27949	17.2
26	21-Jun	219391 (4.5)	48066	21.9
27	28-Jun	265295 (5.4)	66354	25.0
28	05-Jul	268773 (5.5)	76442	28.4
29	12-Jul	246511 (5.0)	75046	30.4
30	19-Jul	232769 (4.7)	69560	29.9
31	26-Jul	182277 (3.7)	51297	28.1
32	02-Aug	148533 (3.0)	35309	23.8
33	09-Aug	115814 (2.4)	22374	19.3
34	16-Aug	109324 (2.2)	18243	16.7
35	23-Aug	99136 (2.0)	14027	14.1
36	30-Aug	89659 (1.8)	10869	12.1
37	06-Sep	93419 (1.9)	10354	11.1
38	13-Sep	96926 (2.0)	10490	10.8
39	20-Sep	78635 (1.6)	8787	11.2
40	27-Sep	97114 (2.0)	9591	9.9
41	04-Oct	103067 (2.1)	10291	10.0
42	11-Oct	108338 (2.2)	10459	9.7
43	18-Oct	110786 (2.3)	10472	9.5
44	25-Oct	104400 (2.1)	9952	9.5
45	01-Nov	106054 (2.2)	10515	9.9
46	08-Nov	112277 (2.3)	12954	11.5
47	15-Nov	122282 (2.5)	16533	13.5
48	22-Nov	132336 (2.7)	19168	14.5
49	29-Nov	152829 (3.1)	26724	17.5
50	06-Dec	182448 (3.7)	39891	21.9
Total		4907776 (100.0)	794311	16.2

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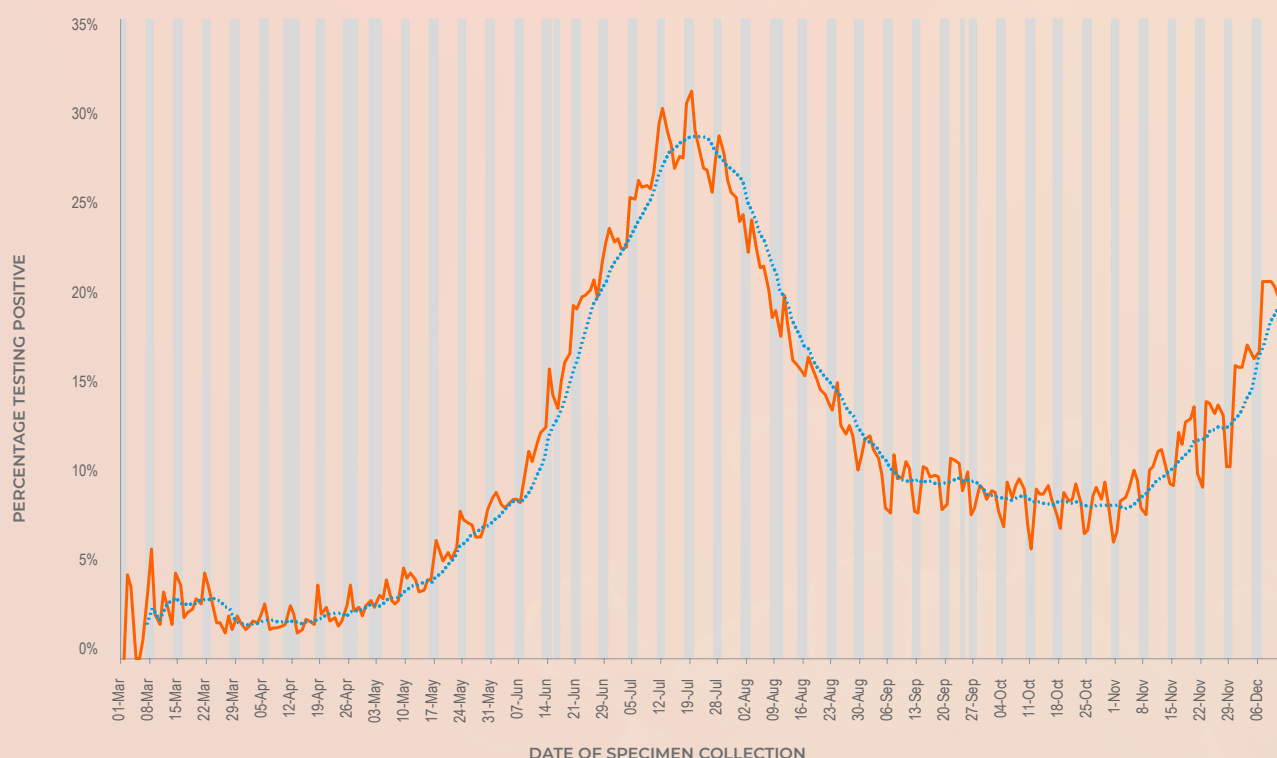


Figure 2. Percentage of laboratory tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March – 12 December 2020. Blue dotted line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

Testing in private and public sectors

From 1 March through 12 December, 2,261,722 laboratory tests were conducted in public sector laboratories, with 16.0% testing positive. Over this same period, private sector laboratories conducted 2,646,054 tests, with 16.4% testing positive (Table 2). Overall the public sector has conducted 46.1% of tests and accounted for 45.5% 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 (31.5%). From week 49 to week 50, the percentage testing positive increased by 2.5% in the public sector (20.4% to 22.9%, $P<0.001$), and increased by 6.1% (15.1% to 21.2%, $P<0.001$) in the private sector. In week 50 the percentage testing positive continued

to be higher in the public sector (22.9%) compared to the private sector (21.2%) ($P<0.001$).

The mean turnaround time for tests conducted in week 50 was 1.5 days. Turnaround time remained the same in both the public sector (2.4 days) and the private sector (0.8 days) (Figure 3). Turnaround times for public sector tests were >2 days in Eastern Cape (3.4 days), North West (5.8 days), and Mpumalanga (3.8 days) (Figure 4). Turnaround times in the past week increased in Western Cape, North West, Mpumalanga and Limpopo. Twenty of the 28 (71.4%) 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 – 12 December 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)	158	3 (1.9)	61.4	62.5	1.049
11	08-Mar	352	12 (3.4)	1923	59 (3.1)	15.5	16.9	1.111
12	15-Mar	1343	51 (3.8)	19556	603 (3.1)	6.4	7.8	1.232
13	22-Mar	3356	127 (3.8)	13455	281 (2.1)	20.0	31.1	1.812
14	29-Mar	5621	174 (3.1)	11563	200 (1.7)	32.7	46.5	1.790
15	05-Apr	11344	331 (2.9)	13134	190 (1.4)	46.3	63.5	2.017
16	12-Apr	23749	612 (2.6)	17867	368 (2.1)	57.1	62.4	1.251
17	19-Apr	54131	1475 (2.7)	21457	376 (1.8)	71.6	79.7	1.555
18	26-Apr	66228	2289 (3.5)	22994	489 (2.1)	74.2	82.4	1.625
19	03-May	92272	4217 (4.6)	44069	1066 (2.4)	67.7	79.8	1.889
20	10-May	104919	5064 (4.8)	51663	2055 (4.0)	67.0	71.1	1.213
21	17-May	95384	6583 (6.9)	60409	3454 (5.7)	61.2	65.6	1.207
22	24-May	74203	5924 (8.0)	66865	5089 (7.6)	52.6	53.8	1.049
23	31-May	60197	6075 (10.1)	75201	6662 (8.9)	44.5	47.7	1.139
24	07-Jun	59901	7291 (12.2)	93223	11469 (12.3)	39.1	38.9	0.989
25	14-Jun	55901	10990 (19.7)	106694	16959 (15.9)	34.4	39.3	1.237
26	21-Jun	82418	18715 (22.7)	136973	29351 (21.4)	37.6	38.9	1.060
27	28-Jun	97262	25053 (25.8)	168033	41301 (24.6)	36.7	37.8	1.048
28	05-Jul	107894	30163 (28.0)	160879	46279 (28.8)	40.1	39.5	0.972
29	12-Jul	101251	29326 (29.0)	145260	45720 (31.5)	41.1	39.1	0.920
30	19-Jul	96154	28394 (29.5)	136615	41166 (30.1)	41.3	40.8	0.980
31	26-Jul	73868	21364 (28.9)	108409	29933 (27.6)	40.5	41.6	1.047
32	02-Aug	64109	15775 (24.6)	84424	19534 (23.1)	43.2	44.7	1.063
33	09-Aug	53672	10424 (19.4)	62142	11950 (19.2)	46.3	46.6	1.010
34	16-Aug	50896	8937 (17.6)	58428	9306 (15.9)	46.6	49.0	1.102
35	23-Aug	45486	7240 (15.9)	53650	6787 (12.7)	45.9	51.6	1.258
36	30-Aug	41059	5628 (13.7)	48600	5241 (10.8)	45.8	51.8	1.271
37	06-Sep	46367	5986 (12.9)	47052	4368 (9.3)	49.6	57.8	1.391
38	13-Sep	49086	6116 (12.5)	47840	4374 (9.1)	50.6	58.3	1.363
39	20-Sep	40912	5131 (12.5)	37723	3656 (9.7)	52.0	58.4	1.294
40	27-Sep	44207	5205 (11.8)	52907	4386 (8.3)	45.5	54.3	1.420
41	04-Oct	45596	5282 (11.6)	57471	5009 (8.7)	44.2	51.3	1.329
42	11-Oct	48214	5304 (11.0)	60124	5155 (8.6)	44.5	50.7	1.283
43	18-Oct	50183	5596 (11.2)	60603	4876 (8.0)	45.3	53.4	1.386
44	25-Oct	45589	5307 (11.6)	58811	4645 (7.9)	43.7	53.3	1.474
45	01-Nov	47123	5583 (11.8)	58931	4932 (8.4)	44.4	53.1	1.416
46	08-Nov	52633	7474 (14.2)	59644	5480 (9.2)	46.9	57.7	1.546
47	15-Nov	59902	9759 (16.3)	62380	6774 (10.9)	49.0	59.0	1.500
48	22-Nov	65069	11103 (17.1)	67267	8065 (12.0)	49.2	57.9	1.423
49	29-Nov	69958	14251 (20.4)	82871	12473 (15.1)	45.8	53.3	1.353
50	06-Dec	73662	16833 (22.9)	108786	23058 (21.2)	40.4	42.2	1.078
Total		2261722	361169 (16.0)	2646054	433142 (16.4)	46.1	45.5	0.976

^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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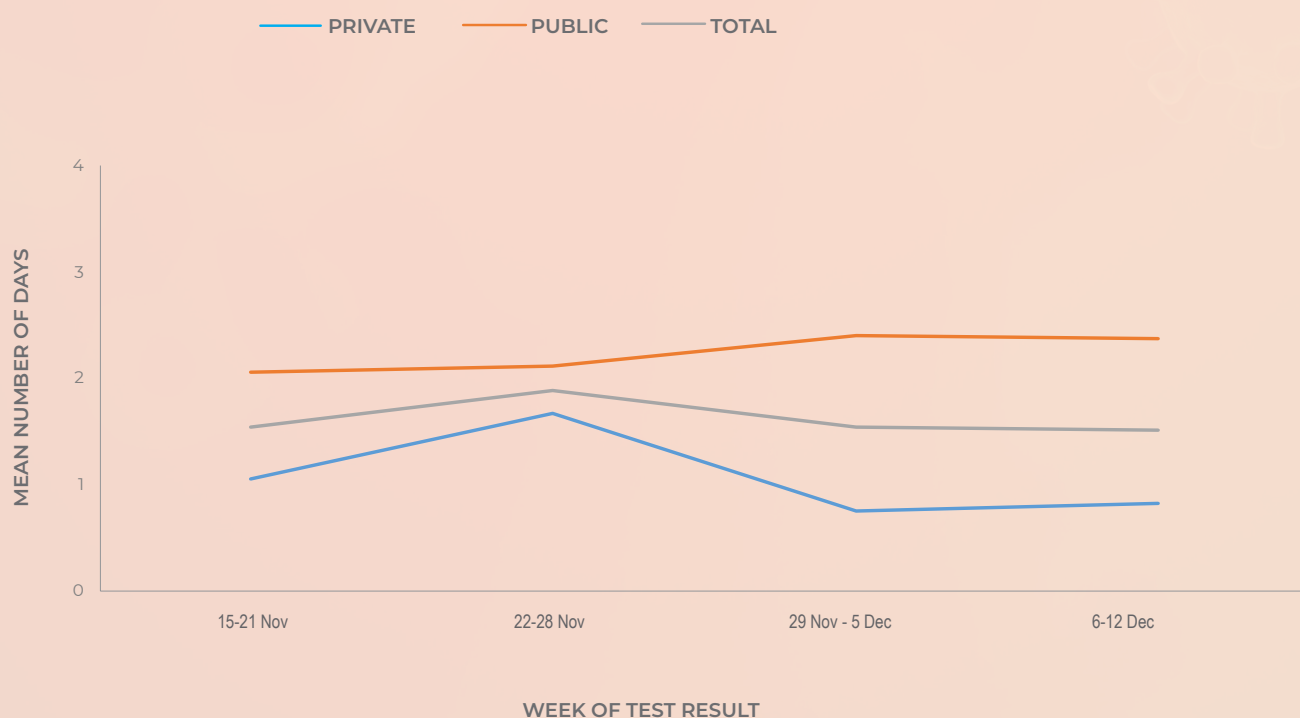


Figure 3. Mean number of days between date of specimen collection and date of test result, by week of test result, South Africa, 15 November – 12 December 2020

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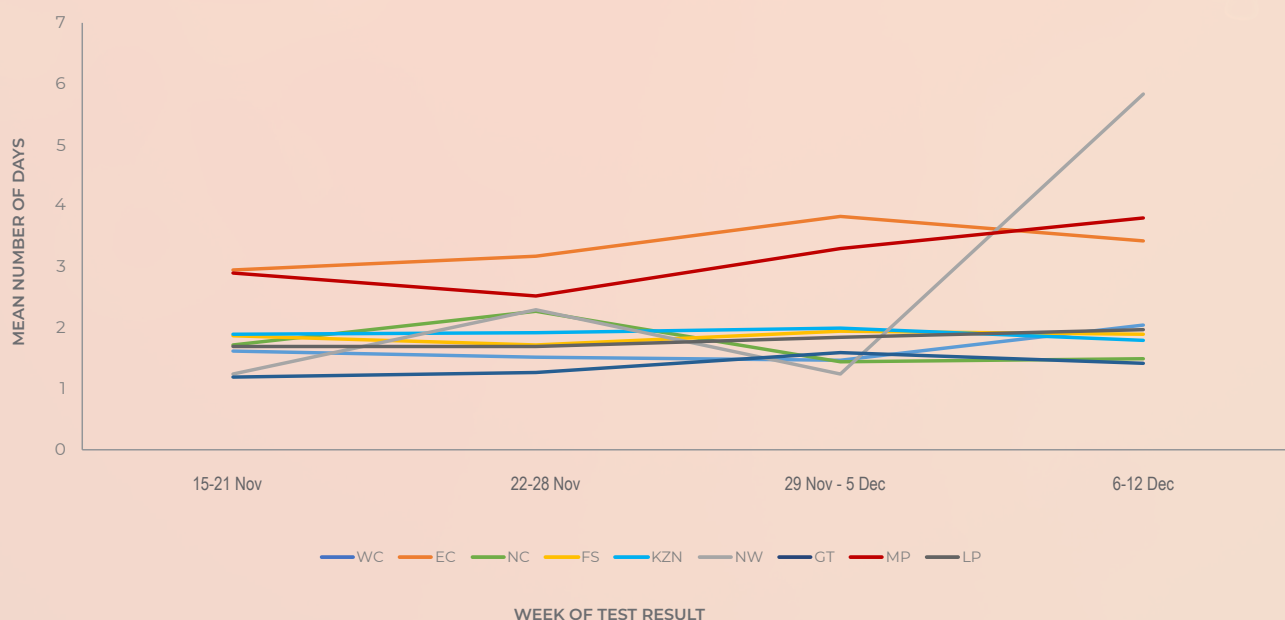


Figure 4. Mean number of days between date of specimen collection and date of test result, by week of test result and province, public sector, South Africa, 15 November – 12 December 2020. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal; GT, Gauteng; NC, Northern Cape; NW, North West; MP, Mpumalanga; LP, Limpopo

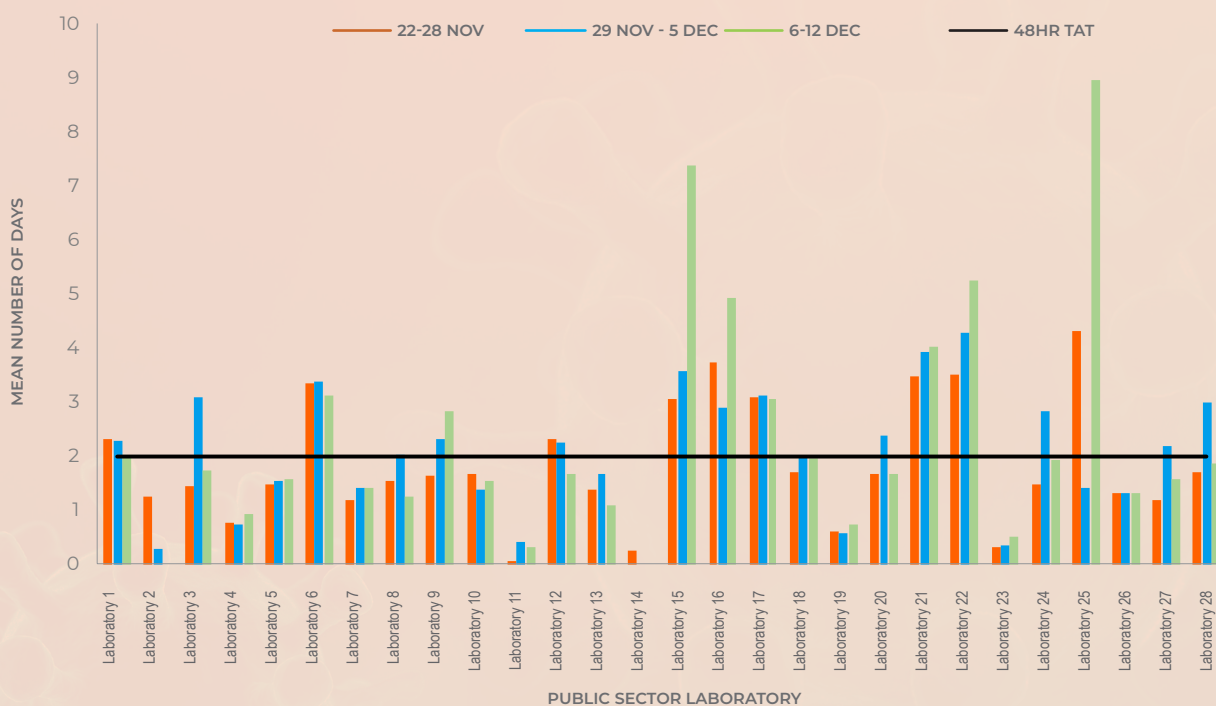


Figure 5. Mean number of days between date of specimen collection and date of test result, by public sector laboratory, 22 November – 12 December 2020. The horizontal black line indicates 48-hour turnaround time (TAT).

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Testing by province

Gauteng (31.0%) performed the largest number of tests in week 50, followed by Western Cape (22.3%), KwaZulu-Natal (21.7%) and Eastern Cape (13.2%) provinces (Table 3). Western Cape (582 per 100,000 persons), Gauteng (365 per 100,000 persons), Eastern Cape (358 per 100,000 persons) and KwaZulu-Natal (342 per 100,000) provinces had the highest testing rates in week 50 (Figure 6). Over recent weeks, testing rates have increased in the Western Cape, Gauteng, KwaZulu-Natal, and decreased in the Eastern Cape.

The percentage testing positive in week 50 was highest in the Eastern Cape (34.6%), Western Cape (31.2%), and KwaZulu-Natal (24.5%). Percentages testing positive were between 10%-19% in North West, Limpopo and

Gauteng and were <10% in Northern Cape, Free State, and Mpumalanga in week 50 (Figure 7). Compared to the previous week, the percentage testing positive in week 50 increased in eight of the nine provinces: 5.7% in the Western Cape (25.5% to 31.2%, $P<0.001$), 1.4% in Eastern Cape (33.2% to 34.6%, $P=0.001$), 1.1% in Free State (6.4% to 7.4%, $P=0.025$), 9.5% in KwaZulu-Natal (15.0% to 24.5%, $P<0.001$), 4.5% in North West (6.4% to 10.9%, $P<0.001$), 5.7% in Gauteng (6.9% to 12.7%, $P<0.001$), 2.2% in Mpumalanga (6.3% to 8.5%, $P<0.001$), and 5.4% in Limpopo (9.3% to 14.7%, $P<0.001$). The percentage testing positive in week 50 compared to week 49 did not change in Northern Cape ($P=0.414$). The percentage testing positive was higher than the national average, not weighted for population size, in the Eastern Cape, Western Cape, and KwaZulu-Natal provinces (Figure 7).

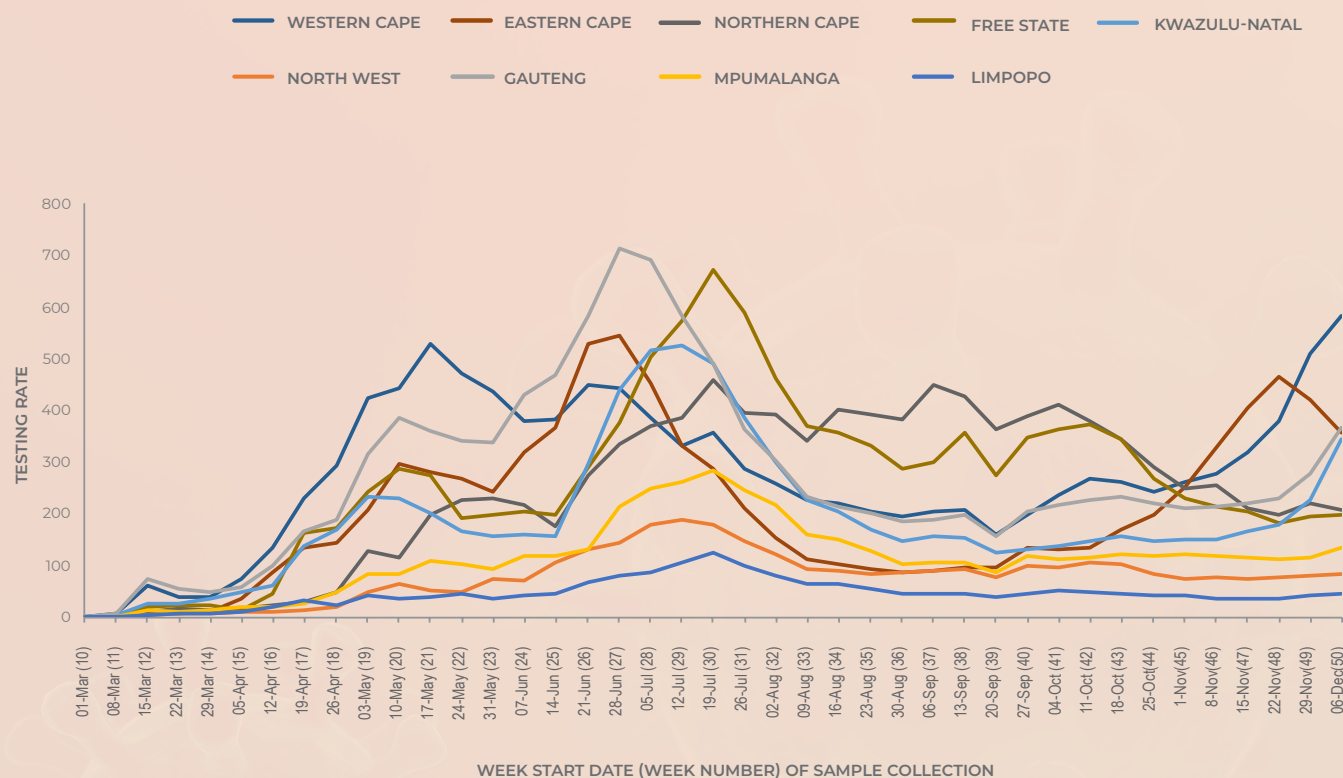


Figure 6. Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 1 March – 12 December 2020

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Table 3. Weekly number of tests performed and positive tests, by province, South Africa, 22 November – 12 December 2020

Province	Population ^a	22-28 Nov		28 Nov – 5 Dec		6-12 Dec		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	26612	5473 (20.6)	35627	9081 (25.5)	40750	12710 (31.2)	582	5.7%
Eastern Cape	6734001	31398	9284 (29.6)	28258	9387 (33.2)	24080	8328 (34.6)	358	1.4%
Northern Cape	1292786	2541	191 (7.5)	2852	215 (7.5)	2682	218 (8.1)	207	0.6%
Free State	2928903	5348	231 (4.3)	5710	364 (6.4)	5813	432 (7.4)	198	1.1%
KwaZulu-Natal	11531628	20437	1664 (8.1)	26174	3927 (15.0)	39549	9698 (24.5)	343	9.5%
North West	4108816	3134	186 (5.9)	3328	214 (6.4)	3408	372 (10.9)	83	4.5%
Gauteng	15488137	35499	1683 (4.7)	42762	2963 (6.9)	56548	7159 (12.7)	365	5.7%
Mpumalanga	4679786	5204	306 (5.9)	5369	339 (6.3)	6342	542 (8.5)	136	2.2%
Limpopo	5852553	2162	150 (6.9)	2424	225 (9.3)	2686	395 (14.7)	46	5.4%
Unknown		1	0 (0.0)	325	9 (2.8)	590	37 (6.3)		3.5%
Total	59622350	132336	19168 (14.5)	152829	26724 (17.5)	182448	39891 (21.9)	306	4.4%

^a 2020 Mid-year population Statistics SA

^b Current week compared to previous week

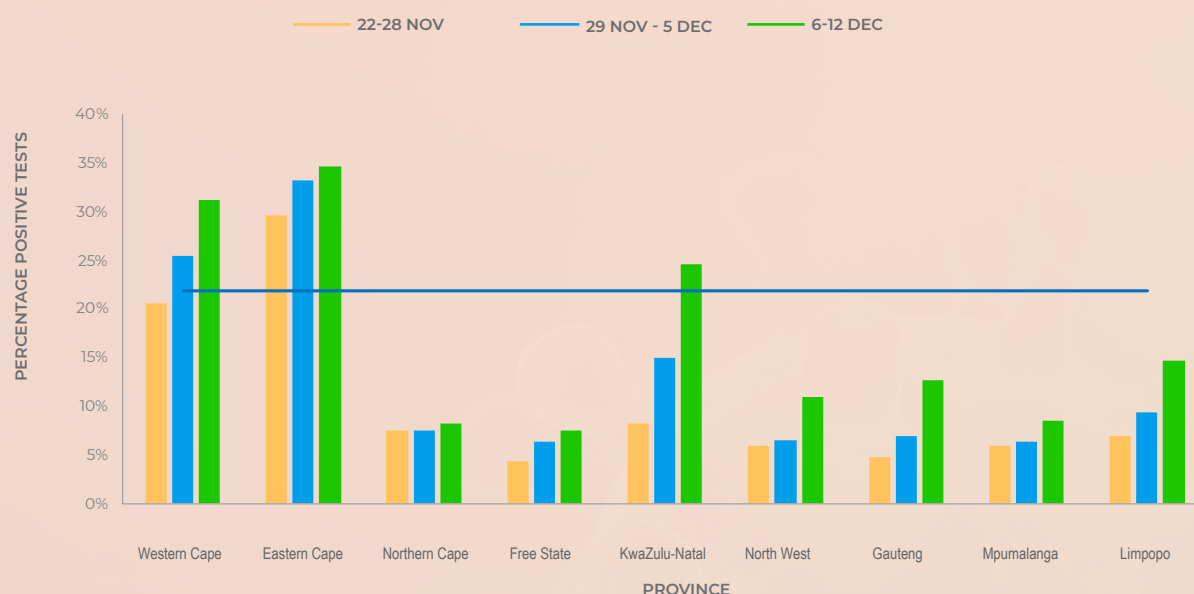


Figure 7. Weekly percentage testing positive, by province, South Africa, 22 November – 12 December 2020. The horizontal blue line shows the national mean for week 50, beginning 6 December 2020.

Testing in the public sector

In the public sector, the percentage testing positive increased in the past week (20.4% in week 49 to 22.9% in week 50, $P < 0.001$) (Table 4). The percentage testing positive in week 50 continued to be highest

in the Western Cape (36.6%) and Eastern Cape (31.9%). 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, 22 November – 12 December 2020

Province	22-28 Nov		29 Nov – 5 Dec		6-12 Dec	
	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	11737	3105 (26.5)	15907	4993 (31.4)	15762	5762 (36.6)
Eastern Cape	22687	6036 (26.6)	19792	6073 (30.7)	15951	5092 (31.9)
Northern Cape	1490	136 (9.1)	1719	162 (9.4)	1565	140 (8.9)
Free State	2784	127 (4.6)	2844	179 (6.3)	2888	231 (8.0)
KwaZulu-Natal	11021	754 (6.8)	12974	1640 (12.6)	17593	3564 (20.3)
North West	1229	116 (9.4)	1226	124 (10.1)	1203	201 (16.7)
Gauteng	11003	579 (5.3)	12403	833 (6.7)	14733	1468 (10.0)
Mpumalanga	2270	176 (7.8)	2080	163 (7.8)	2646	211 (8.0)
Limpopo	848	74 (8.7)	692	76 (11.0)	739	128 (17.3)
Unknown	0	0 (0.0)	321	8 (2.5)	582	36 (6.2)
Total	65069	11103 (17.1)	69958	14251 (20.4)	73662	16833 (22.9)

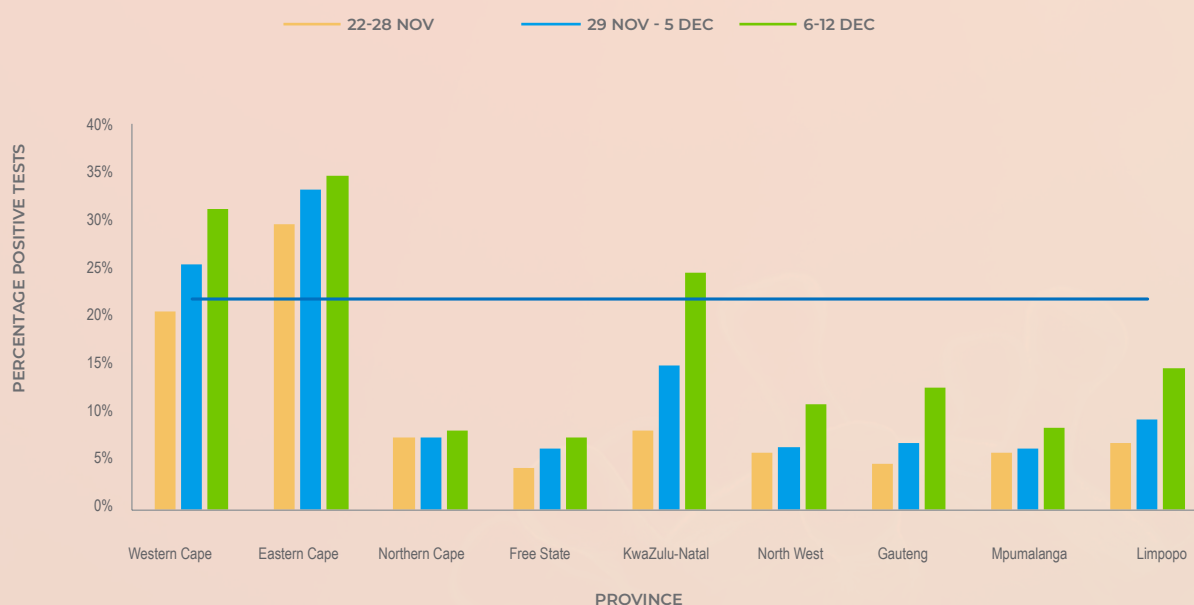


Figure 8. Weekly percentage testing positive in the public sector, by province, South Africa, 22 November – 12 December 2020. The horizontal blue line shows the national mean for week 50, beginning 6 December 2020.

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 6 – 12 December, with the highest proportion testing positive nationally. This week's list is again dominated by facilities in the Western Cape (13) and Eastern Cape (9), and with 3 in the Northern Cape.

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Table 5. Public healthcare facilities with a high proportion testing positive, 6 – 12 December 2020

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Western Cape	32	0.875 (0.760;0.990)
Facility 2	Eastern Cape	44	0.773 (0.649;0.897)
Facility 3	Western Cape	71	0.704 (0.598;0.810)
Facility 4	Western Cape	26	0.692 (0.515;0.870)
Facility 5	KwaZulu-Natal	37	0.676 (0.525;0.827)
Facility 6	Western Cape	39	0.615 (0.463;0.768)
Facility 7	Western Cape	28	0.607 (0.426;0.788)
Facility 8	Eastern Cape	58	0.603 (0.478;0.729)
Facility 9	Eastern Cape	88	0.591 (0.488;0.694)
Facility 10	Western Cape	73	0.589 (0.476;0.702)
Facility 11	Eastern Cape	48	0.583 (0.444;0.723)
Facility 12	Western Cape	48	0.583 (0.444;0.723)
Facility 13	KwaZulu-Natal	138	0.572 (0.490;0.655)
Facility 14	KwaZulu-Natal	25	0.560 (0.365;0.755)
Facility 15	Western Cape	59	0.559 (0.433;0.686)
Facility 16	Western Cape	52	0.558 (0.423;0.693)
Facility 17	Eastern Cape	61	0.557 (0.433;0.682)
Facility 18	Western Cape	36	0.556 (0.393;0.718)
Facility 19	Eastern Cape	27	0.556 (0.368;0.743)
Facility 20	Western Cape	47	0.553 (0.411;0.695)
Facility 21	Eastern Cape	66	0.545 (0.425;0.666)
Facility 22	Western Cape	44	0.545 (0.398;0.693)
Facility 23	Eastern Cape	46	0.543 (0.400;0.687)
Facility 24	Western Cape	26	0.538 (0.347;0.730)
Facility 25	Eastern Cape	26	0.538 (0.347;0.730)

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 6 – 12 December 2020 are shown in Table 6. Districts showing the greatest proportions testing positive are concentrated in the Western Cape (13 districts) and the Eastern Cape (9).

The remaining three districts are in the North West (2) and KwaZulu-Natal (1).

Three districts showed a proportion testing positive greater than 50%, 18 districts a proportion testing positive greater than 40%, and the remaining 4, all greater than 35%. A significant increase over the week was observed in 14 of the 25 districts.

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Table 6. Health sub-districts with the highest proportion testing positive based on public sector data for the week of 6 – 12 December 2020

Health district or sub-district	Province	PTP (95% CI)	Previous week
Greater Kokstad	KwaZulu-Natal	0.566 (0.480-0.652)	0.353 (0.240-0.467)
Cape Agulhas	Western Cape	0.565 (0.472-0.658)	0.087 (0.014-0.161)
Witzenberg	Western Cape	0.550 (0.478-0.622)	0.329 (0.255-0.402)
Theewaterskloof	Western Cape	0.475 (0.420-0.530)	0.201 (0.147-0.255)
Swellendam	Western Cape	0.444 (0.309-0.579)	...
Nxuba	Eastern Cape	0.443 (0.341-0.546)	0.307 (0.219-0.394)
Mossel Bay	Western Cape	0.442 (0.407-0.478)	0.330 (0.294-0.366)
Langeberg	Western Cape	0.442 (0.386-0.498)	0.138 (0.065-0.211)
Sakhisizwe	Eastern Cape	0.439 (0.344-0.534)	0.235 (0.149-0.321)
CT Eastern	Western Cape	0.435 (0.403-0.467)	0.210 (0.168-0.253)
Kou-Kamma	Eastern Cape	0.430 (0.366-0.494)	0.368 (0.314-0.422)
Mnquma	Eastern Cape	0.430 (0.383-0.476)	0.283 (0.237-0.329)
Oudtshoorn	Western Cape	0.428 (0.378-0.479)	0.286 (0.232-0.341)
Saldanha Bay	Western Cape	0.427 (0.332-0.522)	0.069 (0.000-0.162)
Maquassi Hills	North West	0.426 (0.296-0.556)	0.164 (0.016-0.312)
Umzimvubu	Eastern Cape	0.416 (0.370-0.463)	0.268 (0.203-0.333)
Nkonkobe	Eastern Cape	0.412 (0.357-0.468)	0.414 (0.357-0.470)
Mhlontlo	Eastern Cape	0.410 (0.352-0.468)	0.421 (0.361-0.482)
Knysna	Western Cape	0.410 (0.364-0.456)	0.416 (0.379-0.452)
Emalahleni	Eastern Cape	0.405 (0.305-0.505)	0.231 (0.122-0.340)
Beaufort West	Western Cape	0.401 (0.338-0.464)	0.469 (0.359-0.578)
CT Mitchells Plain	Western Cape	0.387 (0.354-0.420)	0.192 (0.159-0.226)
Moses Kotane	North West	0.386 (0.267-0.505)	...
Ntabankulu	Eastern Cape	0.385 (0.298-0.472)	...
Stellenbosch	Western Cape	0.383 (0.308-0.458)	0.179 (0.093-0.264)

95% CI: 95% confidence interval; PTP: adjusted positive test proportion; Elements marked in red have current week proportions testing positive that are higher than, and CIs that do not overlap with, the previous week proportions and CIs. Elements marked in blue have current week proportions testing positive that are lower than, and CIs that do not overlap with, the previous week proportions and CIs.

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

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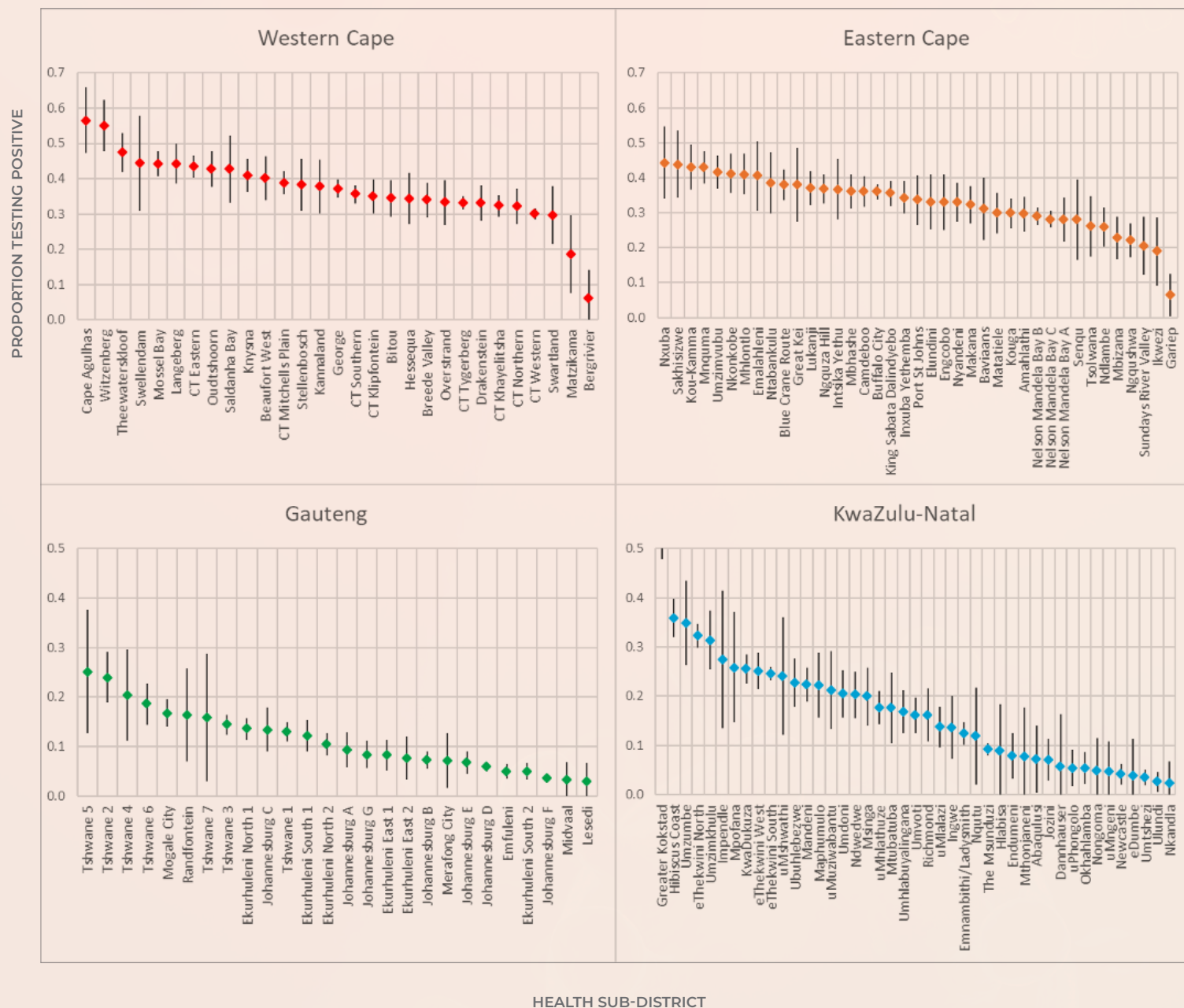


Figure 9.1 Proportions testing positive by health sub-districts in Western Cape, Eastern Cape, Gauteng, and KwaZulu-Natal, provinces based on public sector data for the week of 6 – 12 December 2020.

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Figure 9.2 Proportions testing positive by health sub-districts in North West, Free State, Limpopo, and Mpumalanga provinces based on public sector data for the week of 6 – 12 December 2020.

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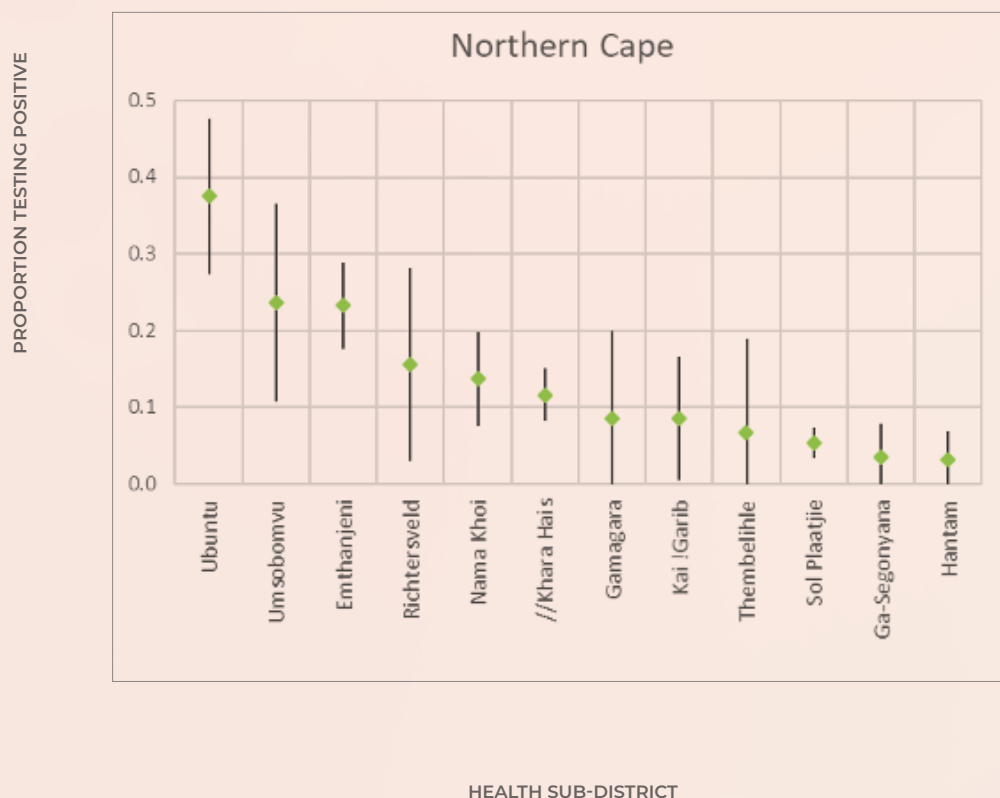


Figure 9.3 Proportions testing positive by health sub-districts in Northern Cape Province based on public sector data for the week of 6 – 12 December 2020.

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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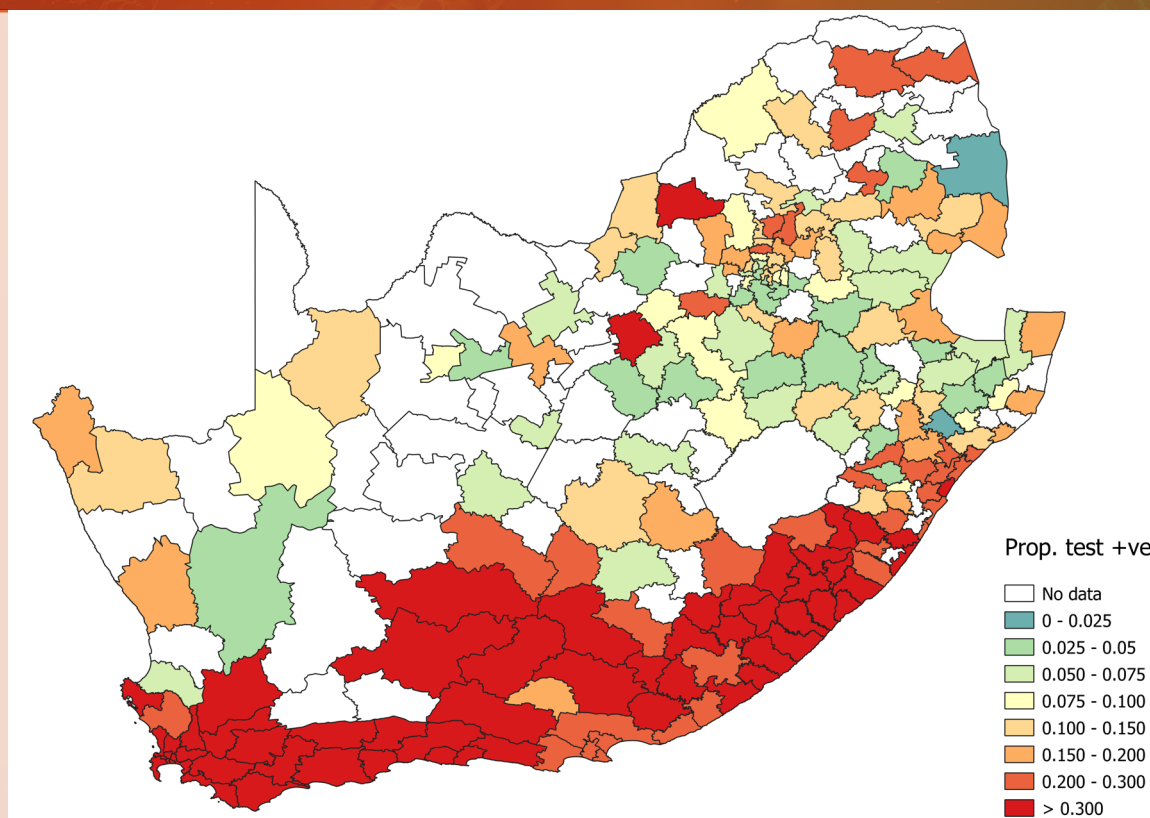


Figure 10. Proportion testing positive by health sub-district based on public sector data for the week of 6 – 12 December 2020, South Africa. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

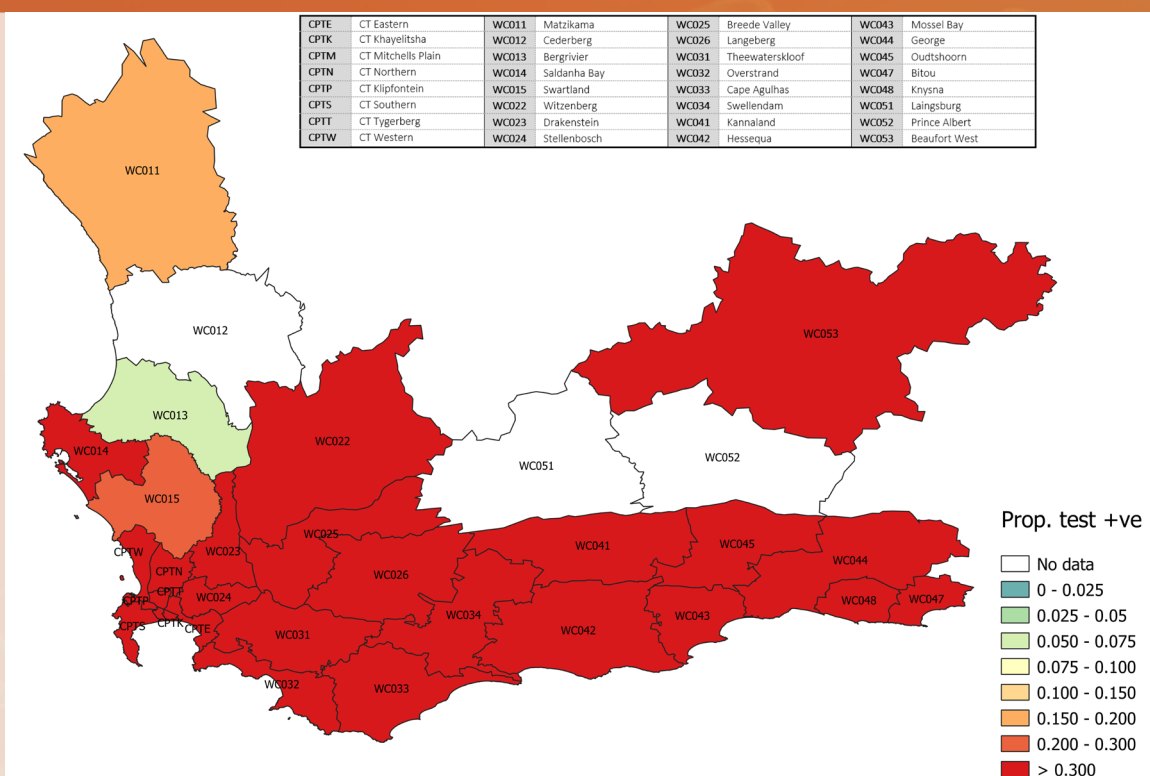


Figure 11. Health sub-districts in the Western Cape province with a high proportion testing positive based on public sector data for the week of 6 – 12 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%

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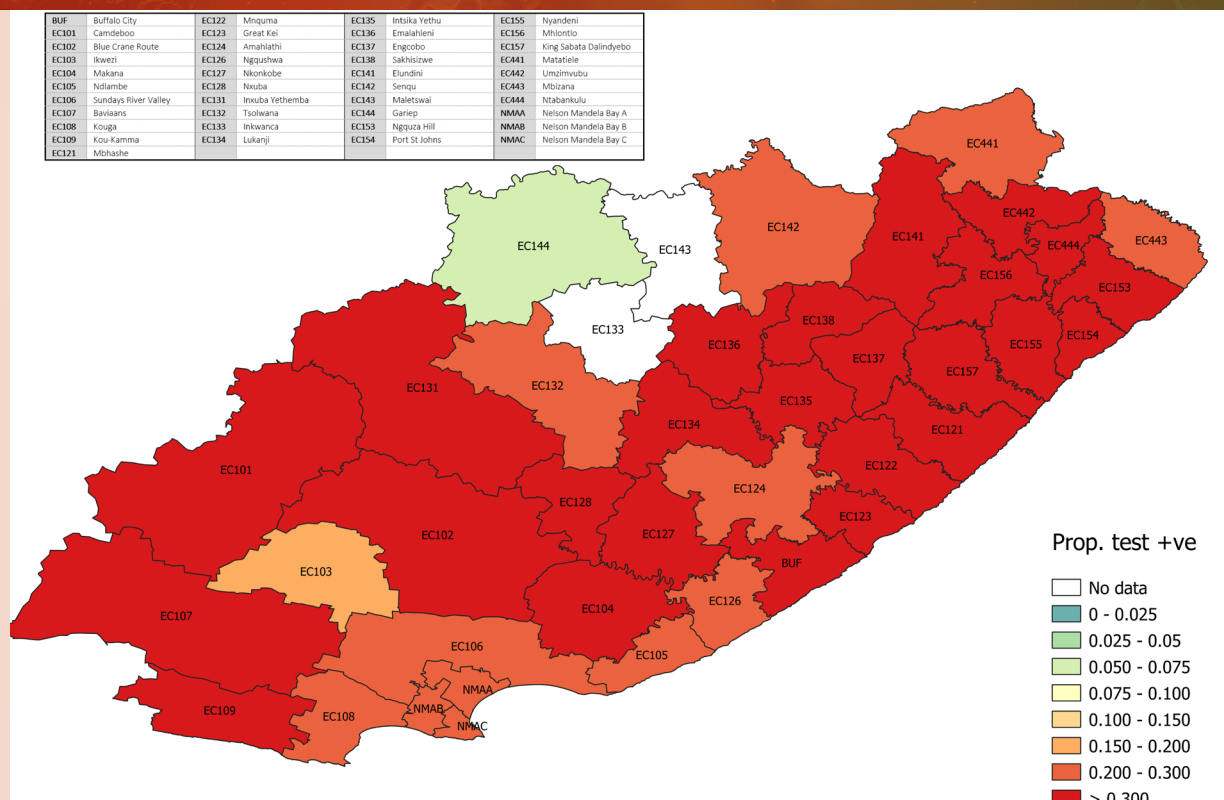


Figure 12. Health sub-districts in the Eastern Cape province with a high proportion testing positive based on public sector data for the week of 6 – 12 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

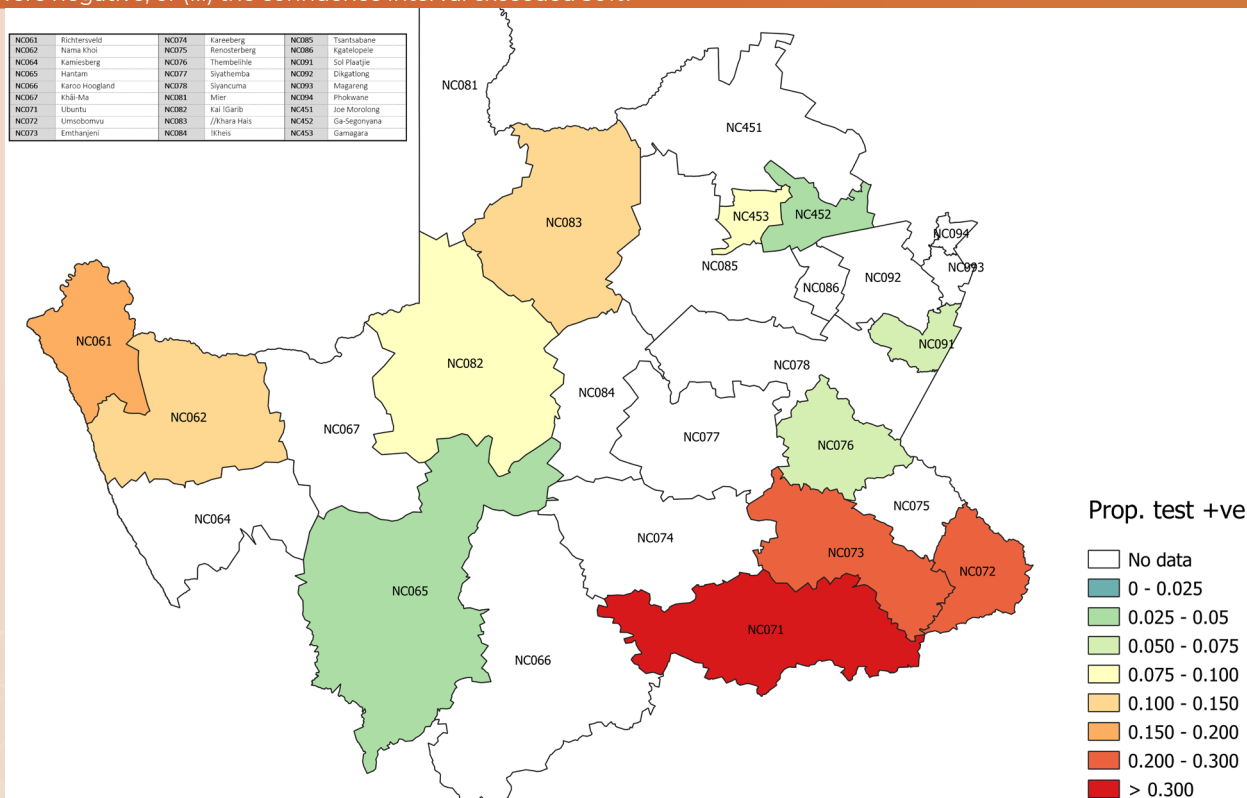


Figure 13. Health sub-districts in Northern Cape Province with a high proportion testing positive based on public sector data for the week of 6 – 12 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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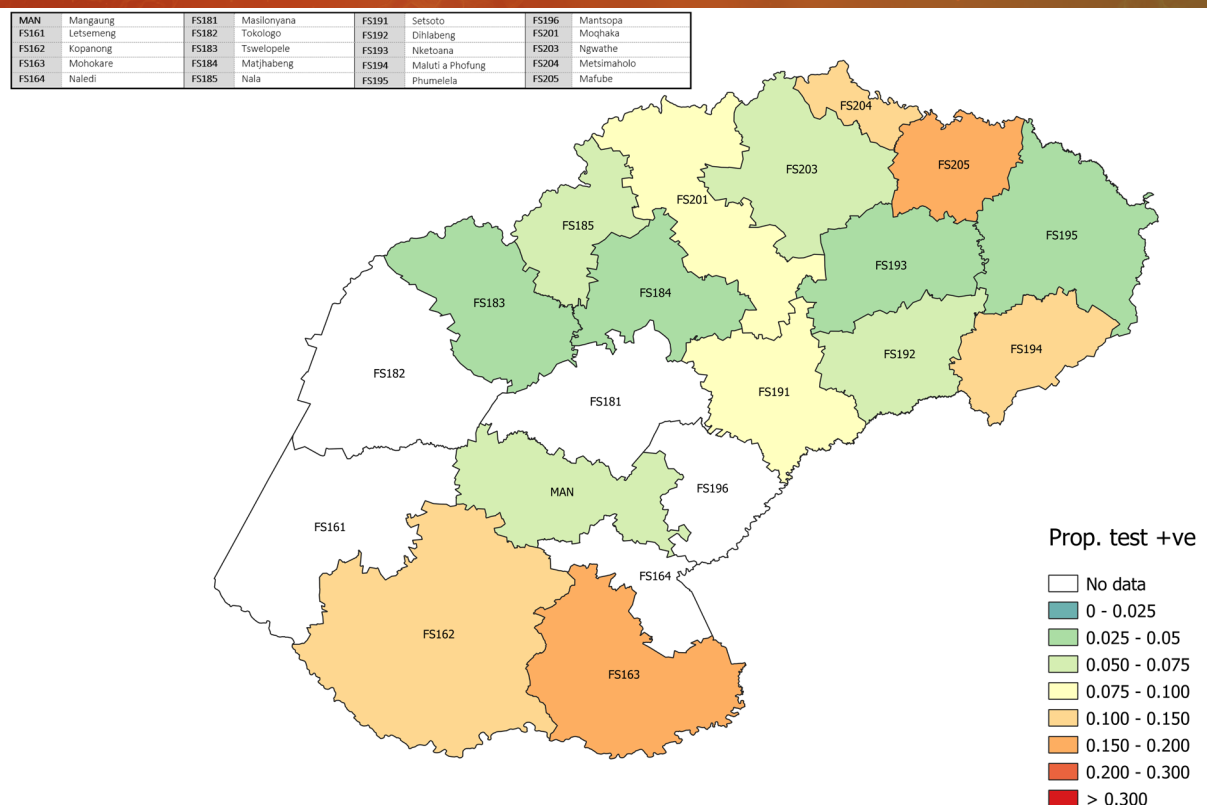


Figure 14. Health sub-districts in Free State Province with a high proportion testing positive based on public sector data for the week of 6 – 12 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

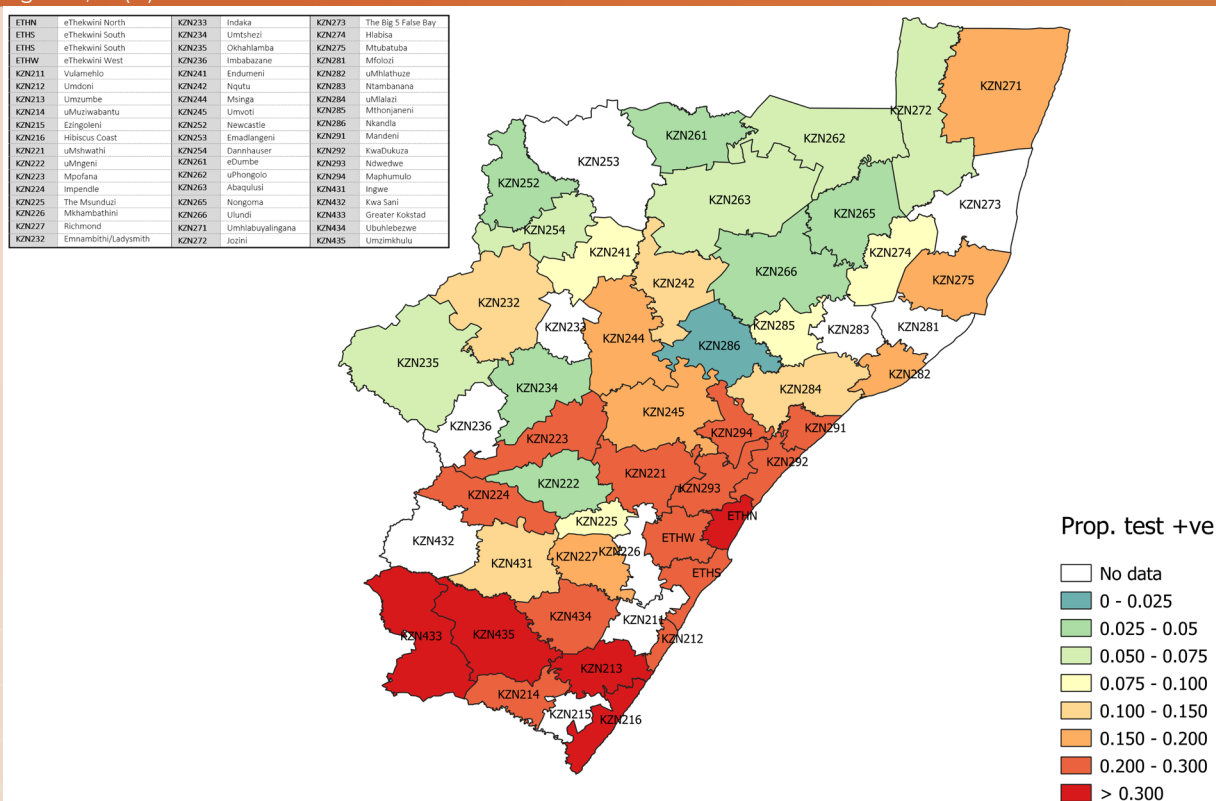


Figure 15. Health sub-districts in KwaZulu-Natal Province with a high proportion testing positive based on public sector data for the week of 6 – 12 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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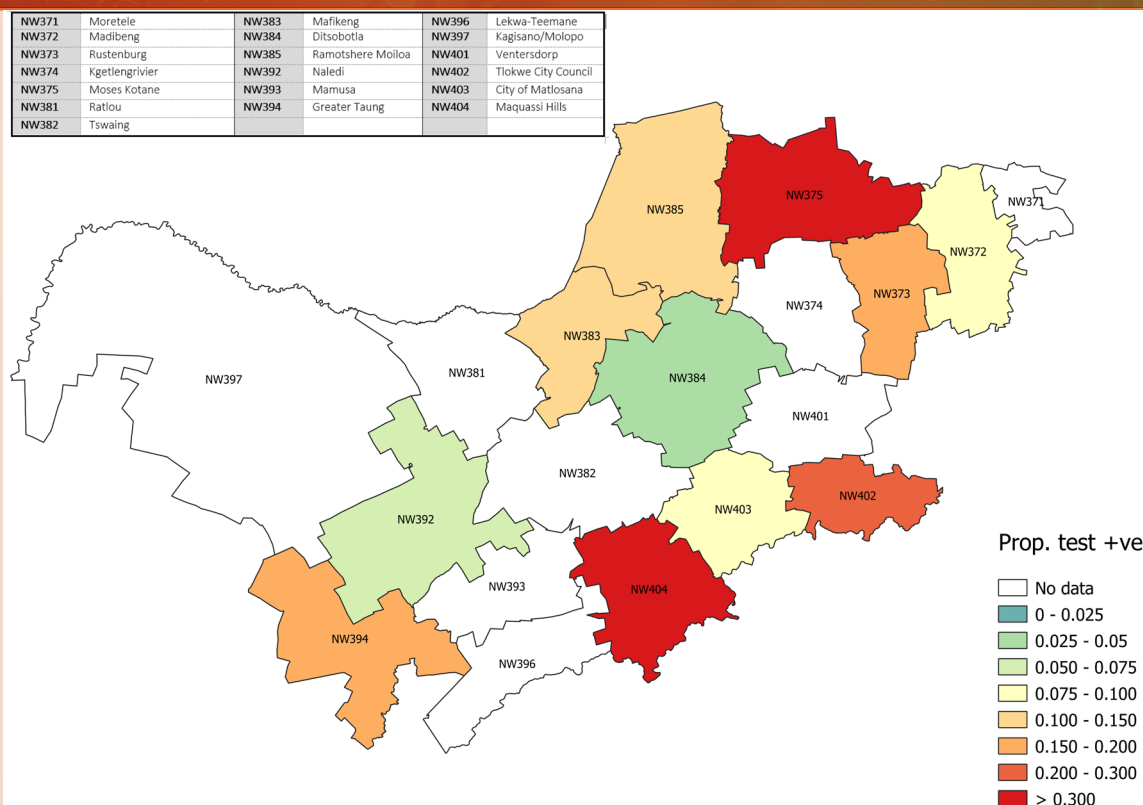


Figure 16. Health sub-districts in North West Province with a high proportion testing positive based on public sector data for the week of 6 – 12 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

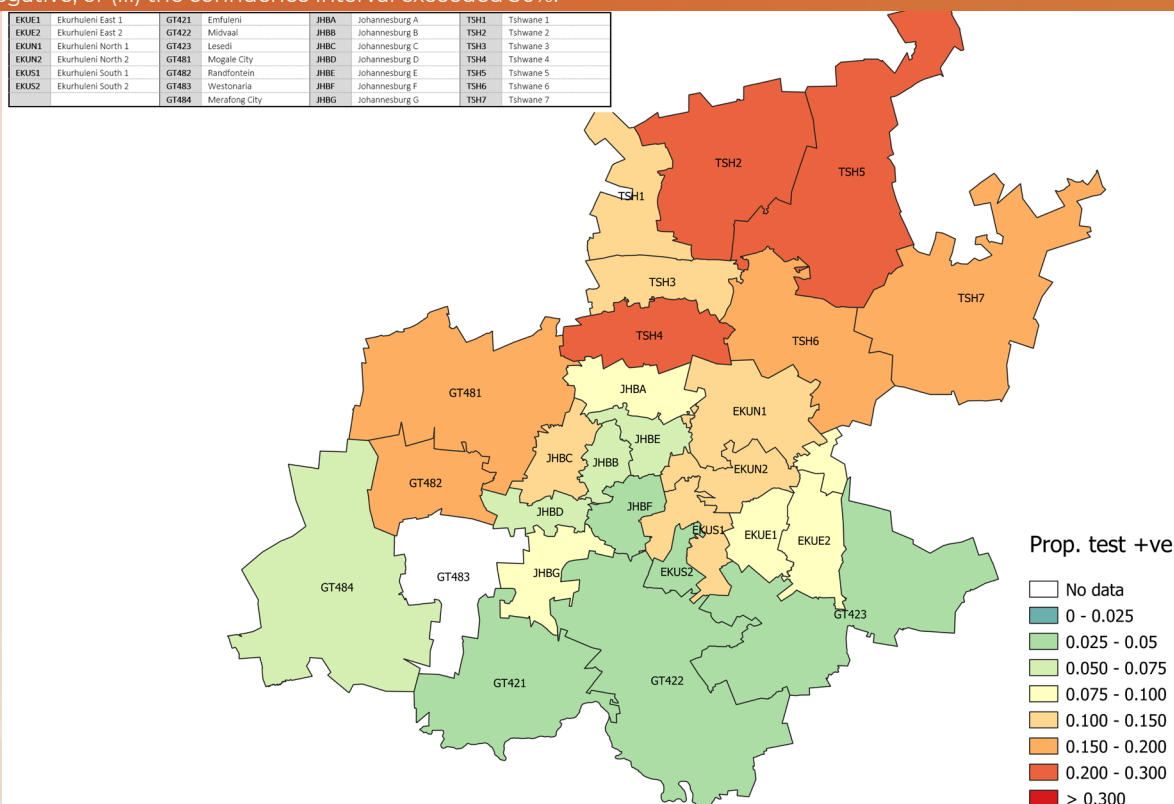


Figure 17. Health sub-districts in Gauteng Province with a high proportion testing positive based on public sector data for the week of 6 – 12 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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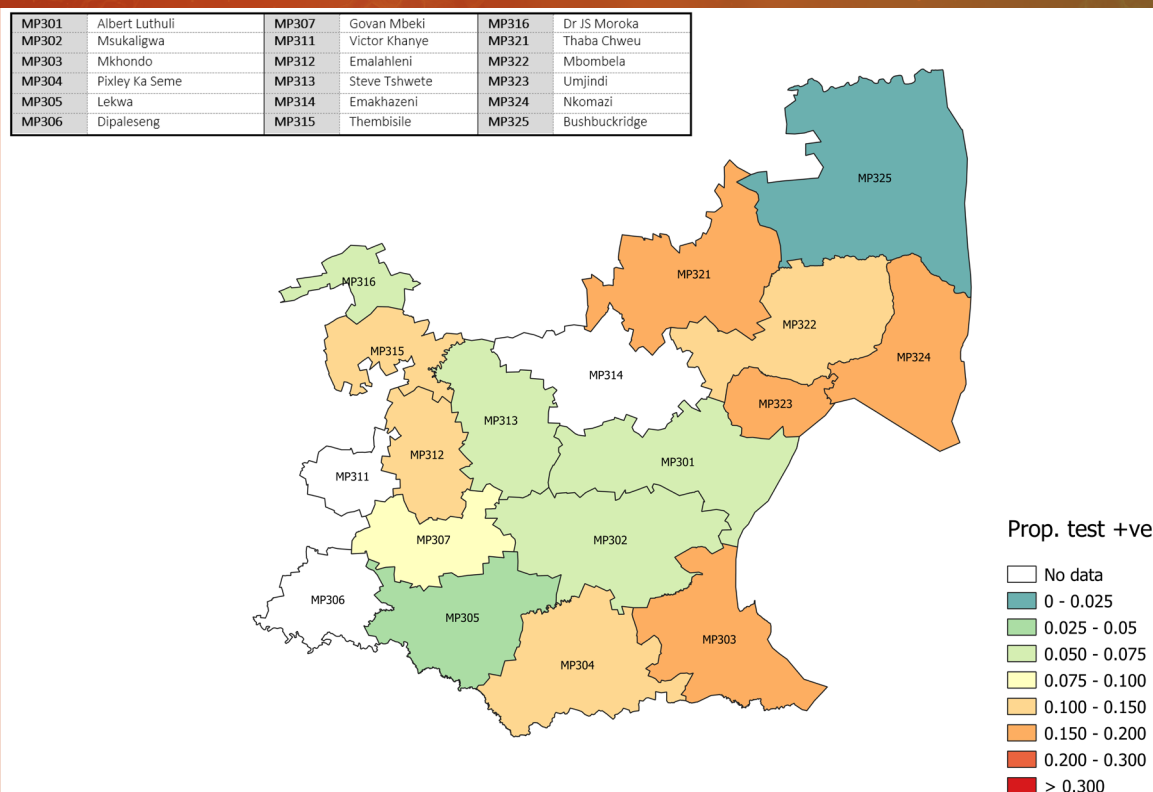


Figure 18. Health sub-districts in Mpumalanga Province with a high proportion testing positive based on public sector data for the week of 6 – 12 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

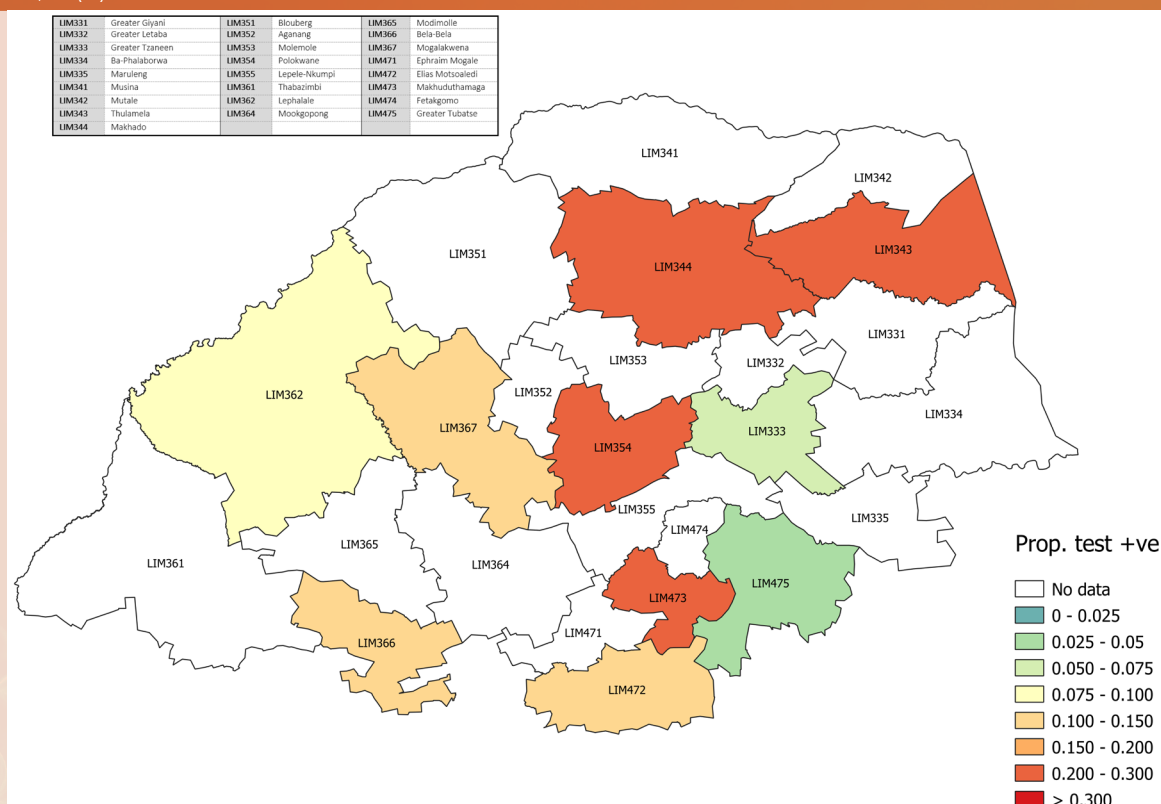


Figure 19. Health sub-districts in Limpopo Province with a high proportion testing positive based on public sector data for the week of 6 – 12 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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Testing by patient admission status

In week 50, 44.3% of tests in the public sector were performed for hospitalised patients (Figure 20). The proportion of inpatient tests was highest in North West (76.0%), Northern Cape (62.2%), Limpopo (60.0%) and KwaZulu-Natal (59.3%) provinces. Comparing week 50 to the previous week, the proportion of inpatient tests increased in five provinces: Eastern

Cape, Northern Cape, KwaZulu-Natal, North West, and Limpopo. The percentage testing positive in week 50 remained lower among inpatients (20.4%) compared to outpatients (27.0%), and increases were observed in both groups (Figure 21). In the public sector in week 50 the mean laboratory turnaround time continued to be lower for inpatients (2.1 days) compared to outpatients (3.0 days) inpatients (Figure 22).

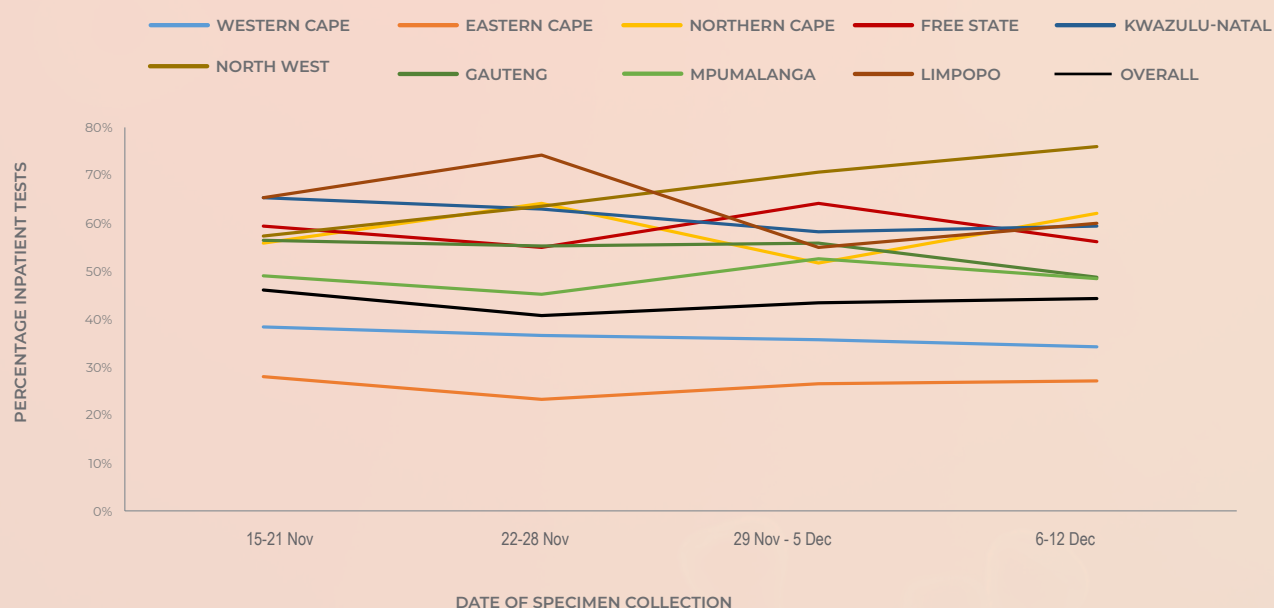


Figure 20. Percentage of inpatient tests performed in the public sector by province, 15 November -12 December 2020

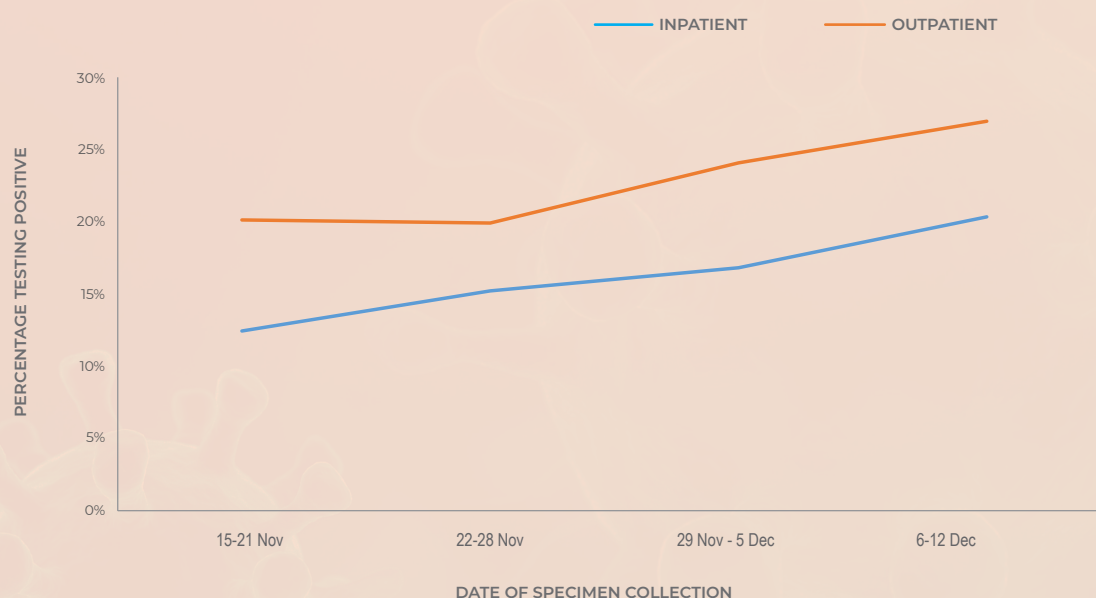


Figure 21. Percentage testing positive by patient admission status in the public sector, 15 November-12 December 2020

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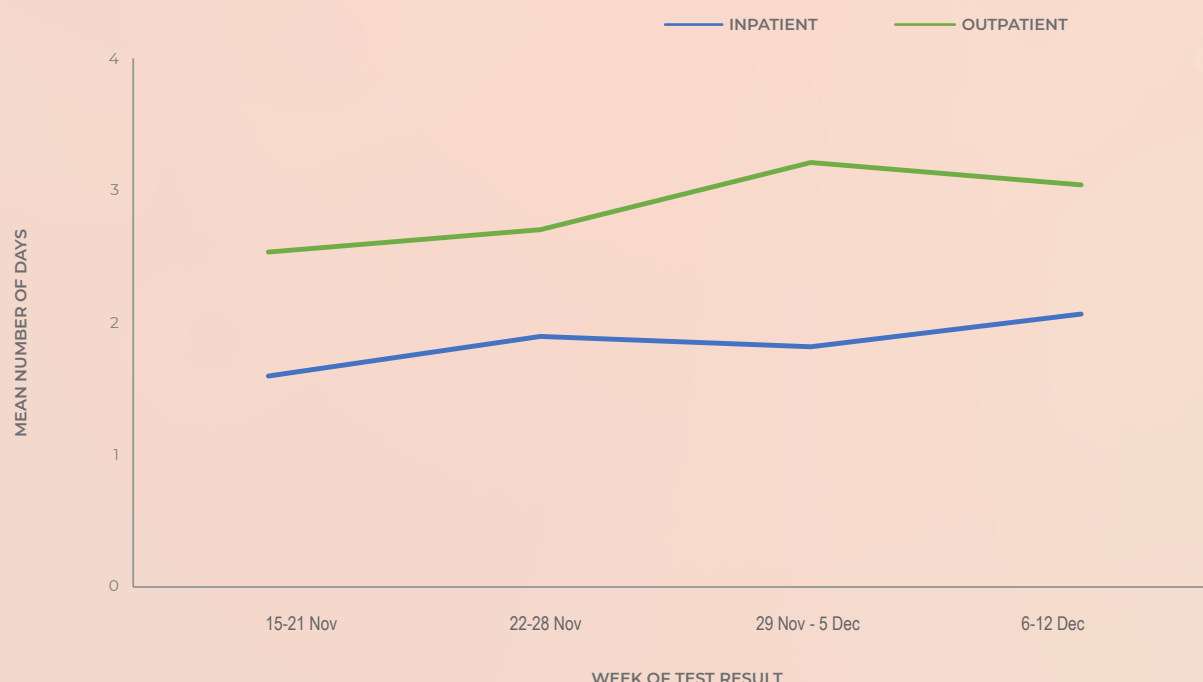


Figure 22. Mean number of days between date of specimen collection and date of test result, by patient admission status and date of test result in the public sector, South Africa, 15 November-12 December 2020

Testing by age and sex

The mean age of individuals tested in week 50 was 38.1 years, slightly lower than the previous week's (38.6 years). The mean age of individuals with a positive test in week 50 was 40.1 years, lower than the previous week (41.2 years). The mean age of individuals with a positive test in week 50 was slightly higher in females

(40.5 years) compared to males (39.7 years, $P < 0.001$) (Table 7). The sex ratio (the number of males per 100 females) of individuals with a positive test in week 50 was 77.2. In both sexes the proportion testing positive in week 50 was higher than or similar to the previous week in all age groups (Figure 23).

Table 7. Mean age and sex ratio of individuals tested, South Africa, 15 November - 12 December 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
47	15 November	38.8	39.4	41.2	41.3	88.2	71.6
48	22 November	38.5	39.2	41.5	41.6	87.2	72.8
49	29 November	38.2	39.1	40.8	41.5	86.7	73.3
50	6 December	37.7	38.5	39.7	40.5	87.5	77.2

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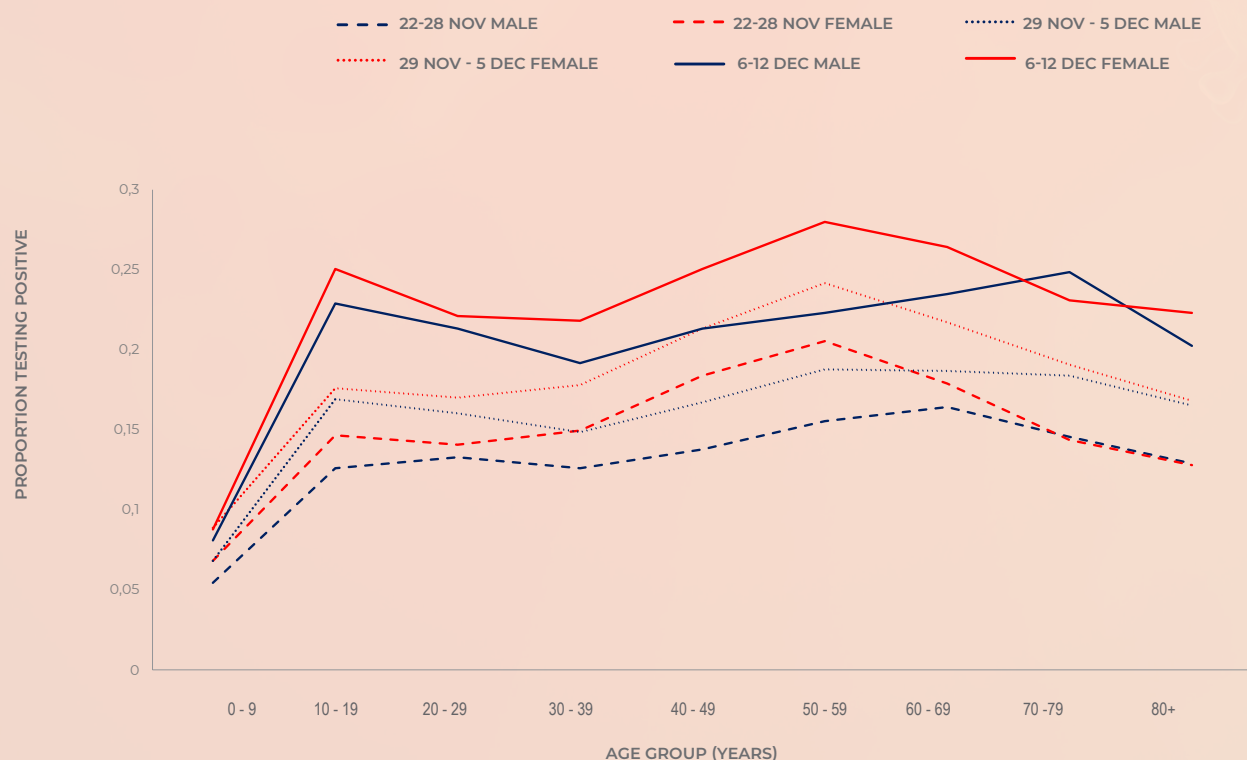


Figure 23. Weekly proportion testing positive by age group and sex, South Africa, 22 November - 12 December 2020

From week 47 to week 50, the percentage testing positive increased by 8.4% in males (from 12.1% to 20.5%) and increased by 8.3% in females (from 14.9% to 23.2%) (Table 8). In week 50 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 ($P<0.001$) age groups, and did not differ in individuals aged ≥ 70 years ($P=0.369$).

Table 8. Percentage testing positive by sex and week, South Africa, 15 November – 12 December 2020

Age (years)	15-21 Nov		22-28 Nov		29 Nov-5 Dec		6-12 Dec	
	Male	Female	Male	Female	Male	Female	Male	Female
0-19	9.5%	11.6%	9.0%	11.5%	12.2%	14.0%	16.7%	18.9%
20-39	11.4%	13.8%	12.9%	14.5%	15.4%	17.4%	20.1%	21.9%
40-59	13.6%	18.0%	14.5%	19.4%	17.6%	22.6%	21.7%	26.3%
60-69	14.4%	16.9%	16.4%	17.9%	18.7%	21.7%	23.5%	26.4%
70+	11.5%	12.4%	14.1%	13.8%	17.9%	18.3%	23.6%	22.8%
Total	12.1%	14.9%	13.2%	15.8%	16.0%	18.9%	20.5%	23.2%

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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 50 was higher than the number of tests performed since week 32. Gauteng (31.0%), Western Cape (22.3%), KwaZulu-Natal (21.7%) and Eastern Cape (13.2%) provinces performed the majority of tests in the past week. Western Cape (582 per 100,000 persons), Gauteng (365 per 100,000 persons), Eastern Cape (358 per 100,000 persons), and KwaZulu-Natal (343 per 100,000 persons) provinces had the highest testing rates in week 50. The overall laboratory turnaround time in week 50 was 1.5 days; 2.4 days in the public sector and 0.8 days in the private sector.

The percentage testing positive decreased from a peak of 30.4% in week 29 to 9.5% in week 43. In week 50 the percentage testing positive was 21.9%, higher than has been observed since week 33 (beginning 9 August). The percentage testing positive was highest in the Eastern Cape (34.6%), Western Cape (31.2%) and KwaZulu-Natal (24.5%). Percentages testing positive were between 10%-19% in North West, Gauteng and Limpopo, and were <10% in Northern Cape, Free State, and Mpumalanga. In week 50, compared to the previous week, the percentage testing positive increased in all provinces except the Northern Cape. Of the 25 districts with the highest proportions testing positive in week 50, 13 were in the Western Cape, 9 in the Eastern Cape, 2 in the North West and 1 in KwaZulu-Natal.