

# COVID-19 TESTING SUMMARY



NATIONAL INSTITUTE FOR  
COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 51 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 19 December 2020 (Week 51 of 2020).

## HIGHLIGHTS

- In the period 1 March 2020 through 19 December 2020, 5,131,929 laboratory tests for SARS-CoV-2 have been conducted nationally.
- The number of tests performed in week 51 were higher than the weekly number of tests performed since week 30 (beginning 19 July)
- Western Cape (599 per 100,000 persons), Gauteng (417 per 100,000 persons), KwaZulu-Natal (399 per 100,000 persons), and Eastern Cape (360 per 100,000 persons) provinces had the highest testing rates in week 51.
- Percentage testing positive decreased from a peak of 30.4% in week 29 to 9.4% in week 43. In week 51 the percentage testing positive was 25.7%, higher than has been observed since week 31 (beginning 26 July).
- Percentage testing positive remained highest in the Western Cape (36.9%), KwaZulu-Natal (32.0%), Eastern Cape (30.1%), and Limpopo (21.2%). Percentages testing positive were between 10.7-16.9% in Northern Cape, Free State, North West, Gauteng, and Mpumalanga.
- In week 51, compared to the previous week, the percentage testing positive increased in the Western Cape, Northern Cape, Free State, KwaZulu-Natal, North West, Gauteng, Mpumalanga, and Limpopo, and decreased in Eastern Cape.
- In this week's report the health district-level results have been updated to include data from both the public and private sector (previous reports included only public sector data).
- Mean laboratory turnaround time in week 51 was 1.6 days; 2.5 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 (NMCSS). 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 (in the metros) level results were mapped based on geo-locatable public and private sector testing facilities. Estimates of overall prevalence were derived using regression techniques. Estimates were adjusted to produce district-specific positive test prevalence based on the national average age and sex profile of testing for that week. This adjustment allows more accurate comparison of the proportion testing positive across districts.

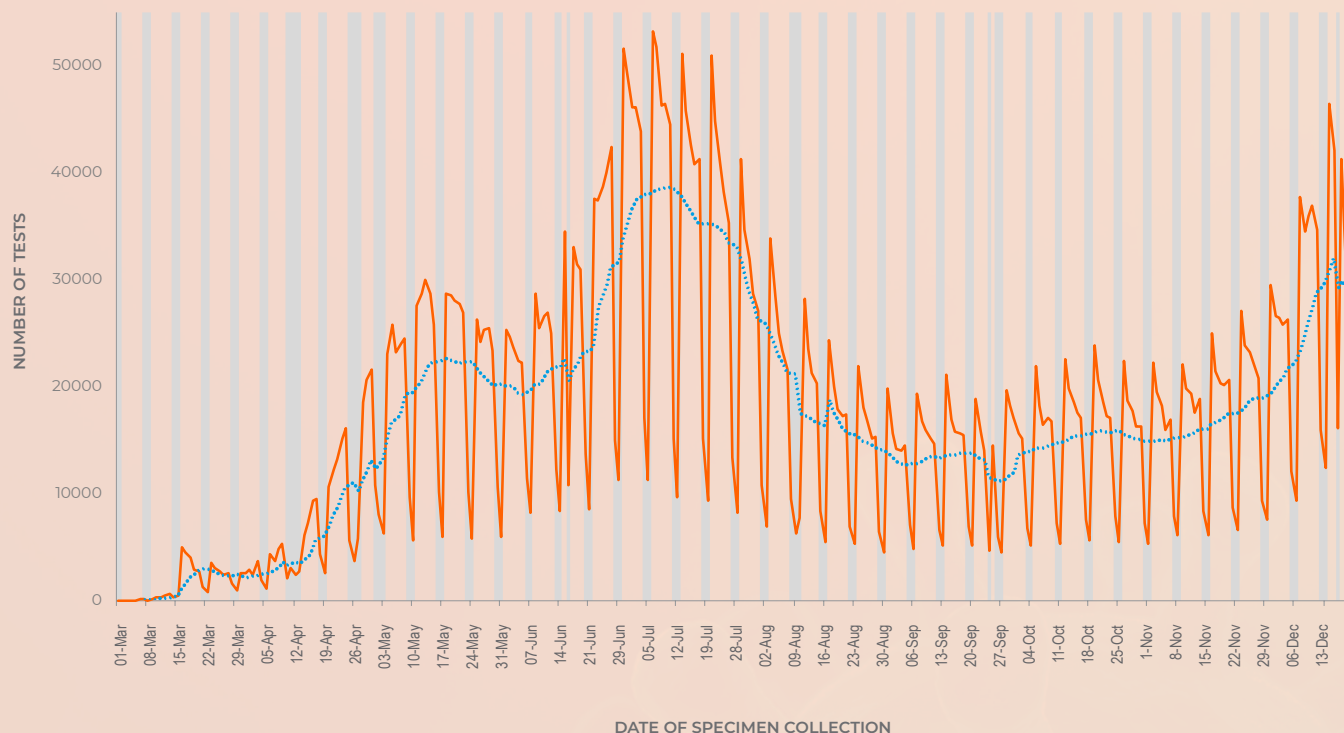
The report includes tests conducted between 1 March 2020 (week 10), the week when the first case of COVID-19 was confirmed, and 19 December 2020 (week 51).

## Testing volumes and proportion testing positive

From 1 March through 19 December 2020, 5,131,929 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=268,642), and have subsequently decreased. In week 51, 201,636 tests were performed, higher than the weekly number of tests performed between weeks 31 and 49. 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 – 19 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 51 was 16.6% (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 9.4% in week 43. The percentage testing positive in week 51 was 25.7%, higher than has been observed since week 31 (beginning 26 July) (Figure 2).

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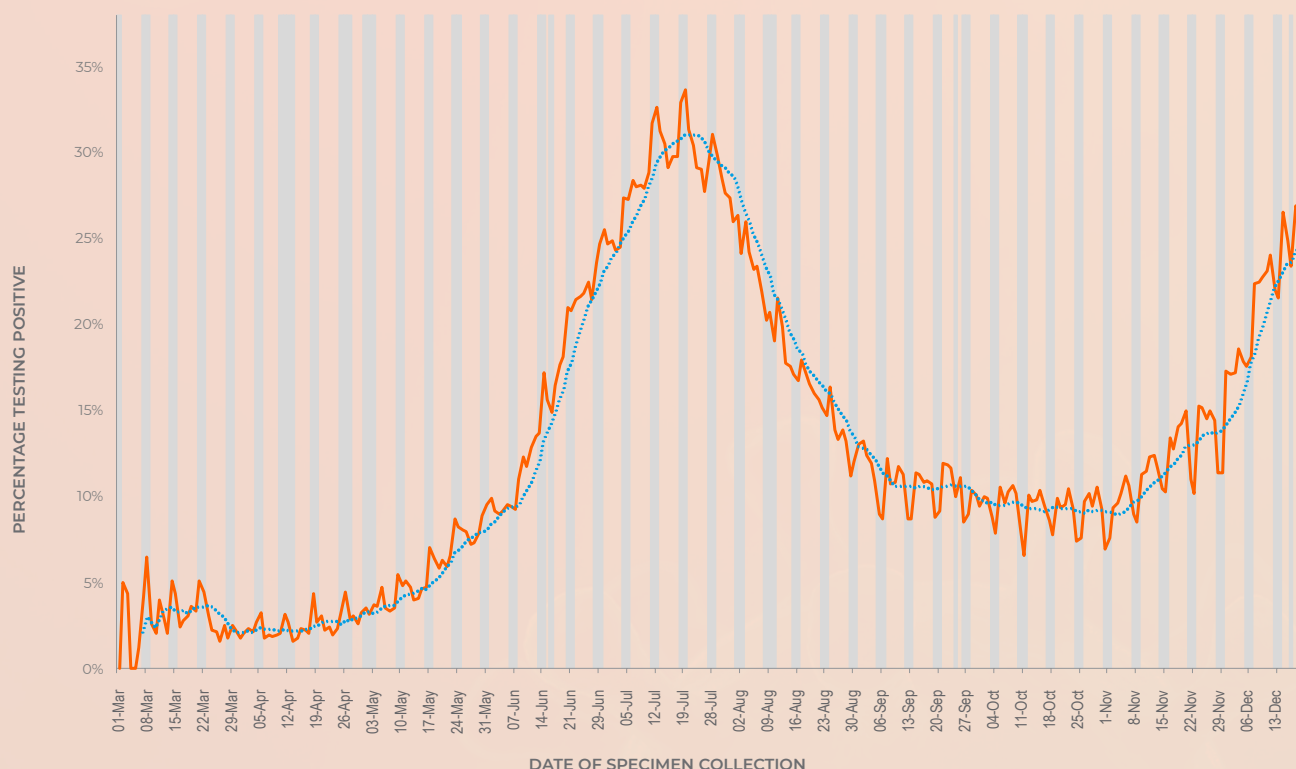
**Table 1.** Weekly number of tests conducted and positive tests, South Africa, 1 March – 19 December 2020

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)
10	01-Mar	408 (0.0)	8	2.0
11	08-Mar	2275 (0.0)	71	3.1
12	15-Mar	20895 (0.4)	652	3.1
13	22-Mar	16808 (0.3)	405	2.4
14	29-Mar	17185 (0.3)	376	2.2
15	05-Apr	24468 (0.5)	521	2.1
16	12-Apr	41607 (0.8)	979	2.4
17	19-Apr	75560 (1.5)	1847	2.4
18	26-Apr	89202 (1.7)	2774	3.1
19	03-May	136309 (2.7)	5280	3.9
20	10-May	156545 (3.1)	7109	4.5
21	17-May	155766 (3.0)	10021	6.4
22	24-May	141039 (2.7)	11005	7.8
23	31-May	135365 (2.6)	12716	9.4
24	07-Jun	153082 (3.0)	18735	12.2
25	14-Jun	162527 (3.2)	27899	17.2
26	21-Jun	219246 (4.3)	47963	21.9
27	28-Jun	265130 (5.2)	66227	25.0
28	05-Jul	268642 (5.2)	76317	28.4
29	12-Jul	246348 (4.8)	74911	30.4
30	19-Jul	232640 (4.5)	69455	29.9
31	26-Jul	182189 (3.6)	51220	28.1
32	02-Aug	148466 (2.9)	35260	23.7
33	09-Aug	115764 (2.3)	22335	19.3
34	16-Aug	109286 (2.1)	18219	16.7
35	23-Aug	99098 (1.9)	14000	14.1
36	30-Aug	89625 (1.7)	10854	12.1
37	06-Sep	93392 (1.8)	10337	11.1
38	13-Sep	96913 (1.9)	10484	10.8
39	20-Sep	78616 (1.5)	8775	11.2
40	27-Sep	97086 (1.9)	9572	9.9
41	04-Oct	103025 (2.0)	10273	10.0
42	11-Oct	108332 (2.1)	10446	9.6
43	18-Oct	110754 (2.2)	10462	9.4
44	25-Oct	104375 (2.0)	9940	9.5
45	01-Nov	106025 (2.1)	10503	9.9
46	08-Nov	112286 (2.2)	12939	11.5
47	15-Nov	122277 (2.4)	16517	13.5
48	22-Nov	132922 (2.6)	19159	14.4
49	29-Nov	154019 (3.0)	26650	17.3
50	06-Dec	204796 (4.0)	46386	22.6
51	13-Dec	201636 (3.9)	51720	25.7
<b>Total</b>		<b>5131929 (100.0)</b>	<b>851322</b>	<b>16.6</b>



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**Figure 2.** Percentage of laboratory tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March – 19 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 19 December, 2,361,799 laboratory tests were conducted in public sector laboratories, with 16.4% testing positive. Over this same period, private sector laboratories conducted 2,770,130 tests, with 16.7% testing positive (Table 2). Overall the public sector has conducted 46.0% 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 (31.4%). From week 50 to week 51, the percentage testing positive increased by 2.0% in the public sector (24.2% to 26.2%,  $P<0.001$ ), and increased by 3.9% (21.4% to 25.3%,  $P<0.001$ ) in the private sector. In week 51 the percentage testing positive continued

to be higher in the public sector (26.2%) compared to the private sector (25.3%) ( $P<0.001$ ).

The mean turnaround time for tests conducted in week 51 was 1.6 days. Turnaround time was 2.5 days in the public sector and 0.9 days in the private sector (Figure 3). Turnaround times for public sector tests were  $>2$  days in Northern Cape (2.2 days), Western Cape (2.5 days), Eastern Cape (2.6 days), KwaZulu-Natal (2.8 days), and Mpumalanga (6.9 days) (Figure 4). Turnaround times in the past week increased in Western Cape, Northern Cape, Free State, KwaZulu-Natal, Gauteng, and Mpumalanga. Seventeen of the 28 (60.7%) NHLS laboratories performing testing for SARS-CoV-2 had turnaround times  $\leq 2$  days (Figure 5).

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**Table 2.** Weekly number of tests conducted and positive tests, by healthcare sector, South Africa, 1 March – 19 December 2020

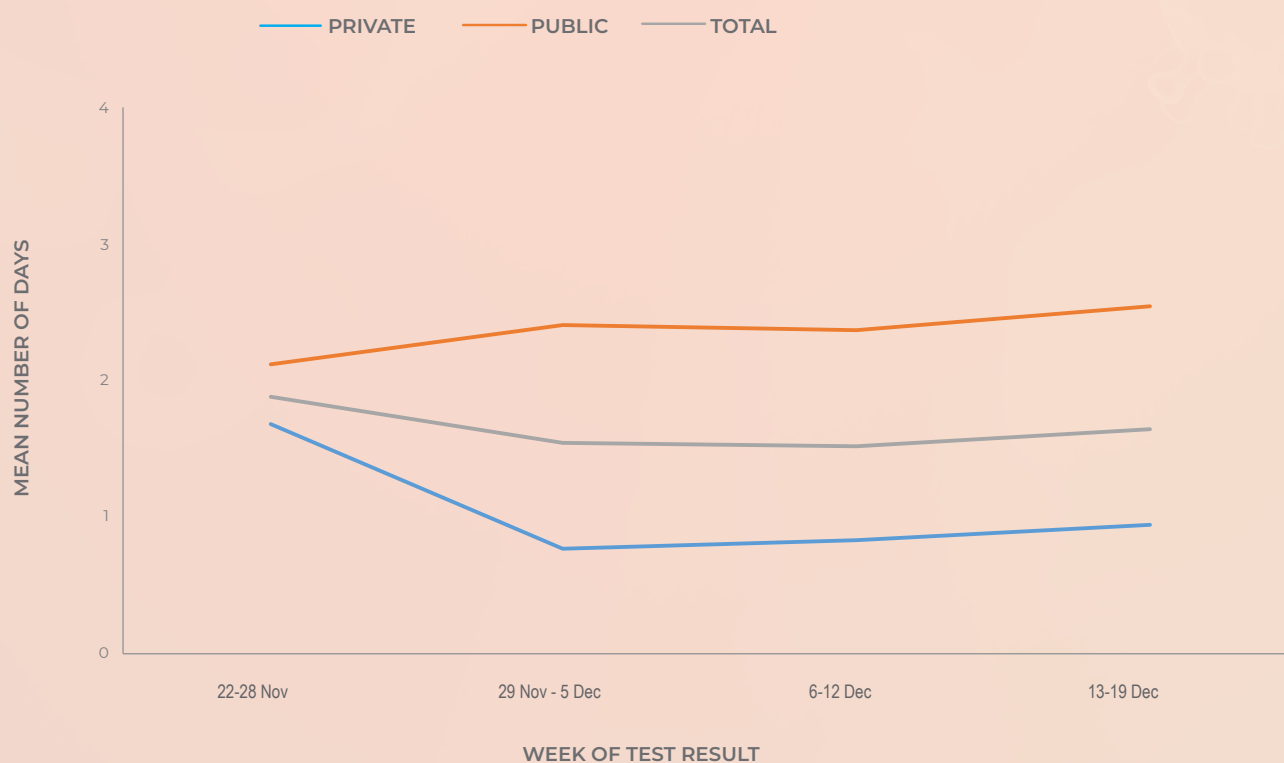
Week number	Week beginning	Public sector		Private sector		Public sector percentage of		Ratio of PTP <sup>a</sup>
		Tests	Cases n (%)	Tests	Positive tests n (%)	Tests (%)	Positive tests (%)	
10	01-Mar	251	5 (2.0)	157	3 (1.9)	61.5	62.5	1.042
11	08-Mar	352	12 (3.4)	1923	59 (3.1)	15.5	16.9	1.111
12	15-Mar	1344	51 (3.8)	19551	601 (3.1)	6.4	7.8	1.234
13	22-Mar	3356	127 (3.8)	13452	278 (2.1)	20.0	31.4	1.831
14	29-Mar	5627	174 (3.1)	11558	202 (1.7)	32.7	46.3	1.769
15	05-Apr	11332	331 (2.9)	13136	190 (1.4)	46.3	63.5	2.019
16	12-Apr	23741	611 (2.6)	17866	368 (2.1)	57.1	62.4	1.249
17	19-Apr	54108	1473 (2.7)	21452	374 (1.7)	71.6	79.8	1.561
18	26-Apr	66213	2287 (3.5)	22989	487 (2.1)	74.2	82.4	1.630
19	03-May	92254	4214 (4.6)	44055	1066 (2.4)	67.7	79.8	1.888
20	10-May	104883	5055 (4.8)	51662	2054 (4.0)	67.0	71.1	1.212
21	17-May	95363	6572 (6.9)	60403	3449 (5.7)	61.2	65.6	1.207
22	24-May	74179	5917 (8.0)	66860	5088 (7.6)	52.6	53.8	1.048
23	31-May	60174	6063 (10.1)	75191	6653 (8.8)	44.5	47.7	1.139
24	07-Jun	59887	7285 (12.2)	93195	11450 (12.3)	39.1	38.9	0.990
25	14-Jun	55862	10967 (19.6)	106665	16932 (15.9)	34.4	39.3	1.237
26	21-Jun	82357	18669 (22.7)	136889	29294 (21.4)	37.6	38.9	1.059
27	28-Jun	97193	25010 (25.7)	167937	41217 (24.5)	36.7	37.8	1.048
28	05-Jul	107851	30129 (27.9)	160791	46188 (28.7)	40.1	39.5	0.973
29	12-Jul	101195	29291 (28.9)	145153	45620 (31.4)	41.1	39.1	0.921
30	19-Jul	96110	28375 (29.5)	136530	41080 (30.1)	41.3	40.9	0.981
31	26-Jul	73847	21355 (28.9)	108342	29865 (27.6)	40.5	41.7	1.049
32	02-Aug	64080	15760 (24.6)	84386	19500 (23.1)	43.2	44.7	1.064
33	09-Aug	53654	10417 (19.4)	62110	11918 (19.2)	46.3	46.6	1.012
34	16-Aug	50876	8930 (17.6)	58410	9289 (15.9)	46.6	49.0	1.104
35	23-Aug	45471	7233 (15.9)	53627	6767 (12.6)	45.9	51.7	1.261
36	30-Aug	41037	5620 (13.7)	48588	5234 (10.8)	45.8	51.8	1.271
37	06-Sep	46367	5985 (12.9)	47025	4352 (9.3)	49.6	57.9	1.395
38	13-Sep	49077	6115 (12.5)	47836	4369 (9.1)	50.6	58.3	1.364
39	20-Sep	40899	5124 (12.5)	37717	3651 (9.7)	52.0	58.4	1.294
40	27-Sep	44194	5199 (11.8)	52892	4373 (8.3)	45.5	54.3	1.423
41	04-Oct	45577	5273 (11.6)	57448	5000 (8.7)	44.2	51.3	1.329
42	11-Oct	48228	5303 (11.0)	60104	5143 (8.6)	44.5	50.8	1.285
43	18-Oct	50174	5592 (11.1)	60580	4870 (8.0)	45.3	53.5	1.386
44	25-Oct	45578	5304 (11.6)	58797	4636 (7.9)	43.7	53.4	1.476
45	01-Nov	47119	5581 (11.8)	58906	4922 (8.4)	44.4	53.1	1.418
46	08-Nov	52659	7473 (14.2)	59627	5466 (9.2)	46.9	57.8	1.548
47	15-Nov	59917	9759 (16.3)	62360	6758 (10.8)	49.0	59.1	1.503
48	22-Nov	65668	11126 (16.9)	67254	8033 (11.9)	49.4	58.1	1.418
49	29-Nov	71218	14279 (20.0)	82801	12371 (14.9)	46.2	53.6	1.342
50	06-Dec	92729	22434 (24.2)	112067	23952 (21.4)	45.3	48.4	1.132
51	13-Dec	79798	20943 (26.2)	121838	30777 (25.3)	39.6	40.5	1.039
<b>Total</b>		<b>2361799</b>	<b>387423 (16.4)</b>	<b>2770130</b>	<b>463899 (16.7)</b>	<b>46.0</b>	<b>45.5</b>	<b>0.980</b>

<sup>a</sup>Ratio 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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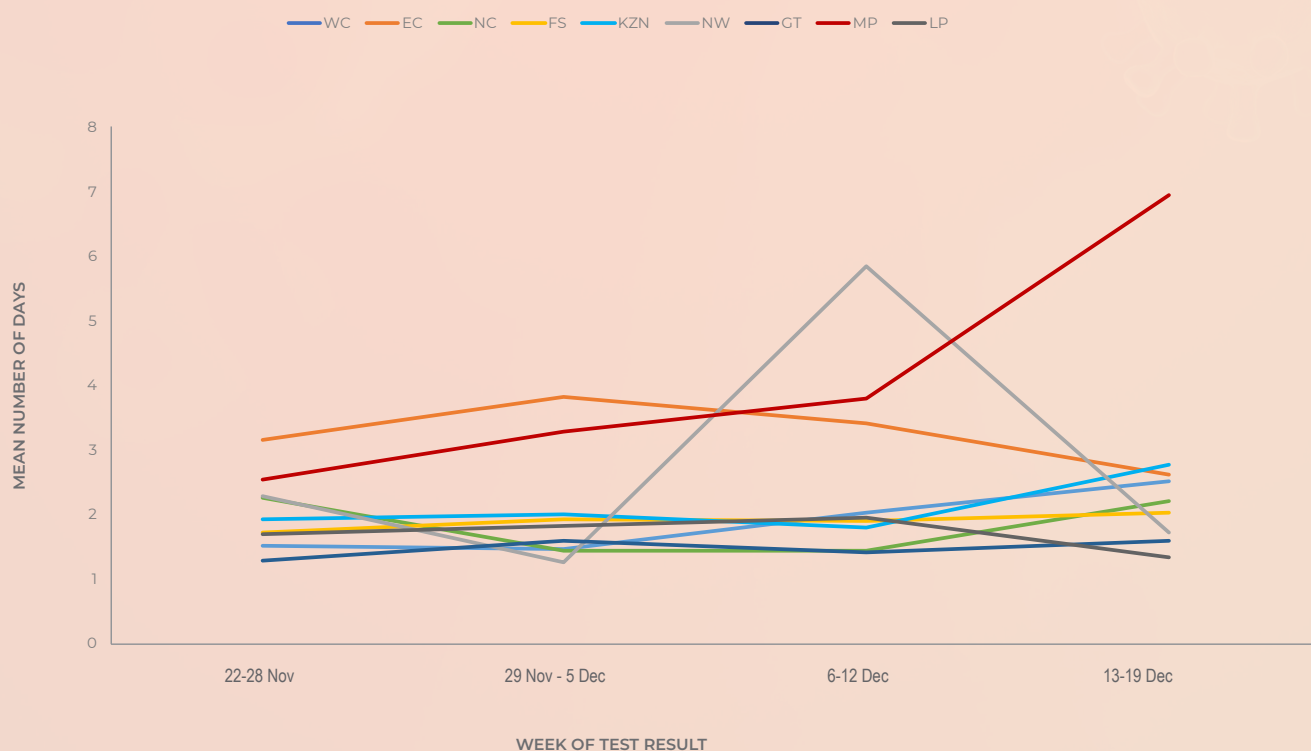


**Figure 3.** Mean number of days between date of specimen collection and date of test result, by week of test result, South Africa, 22 November – 19 December 2020

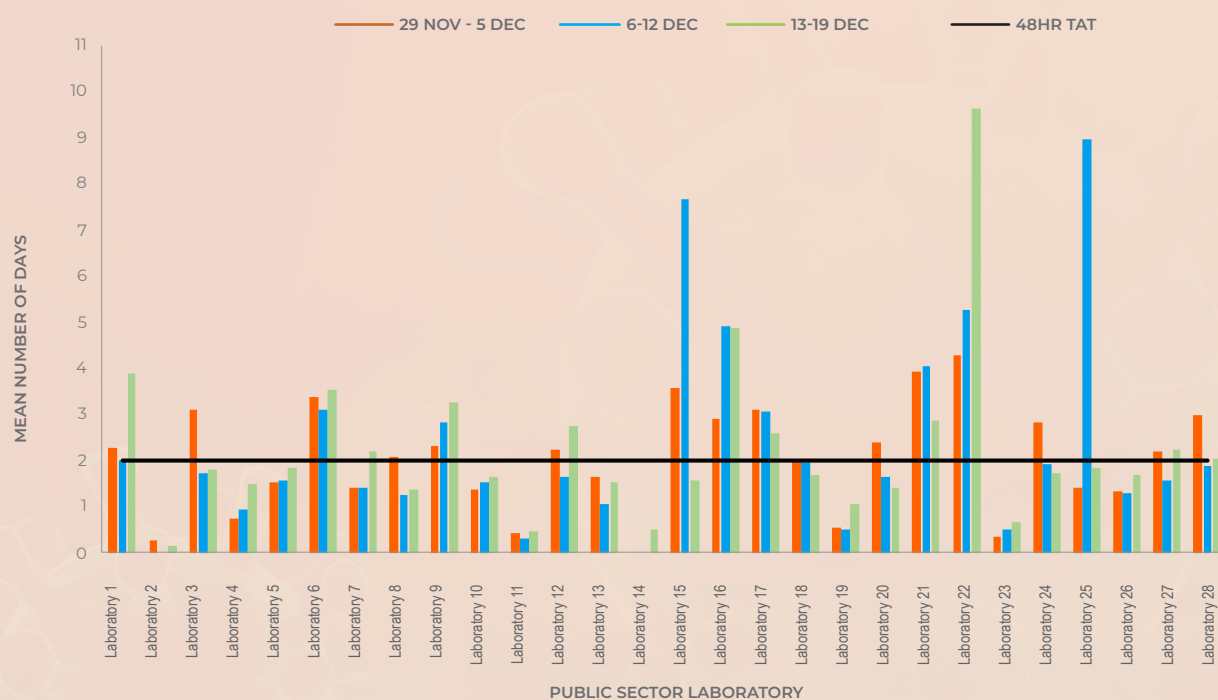


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**Figure 4.** Mean number of days between date of specimen collection and date of test result, by week of test result and province, public sector, South Africa, 22 November – 19 December 2020. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, 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, 29 November – 19 December 2020. The horizontal black line indicates 48-hour turnaround time (TAT).



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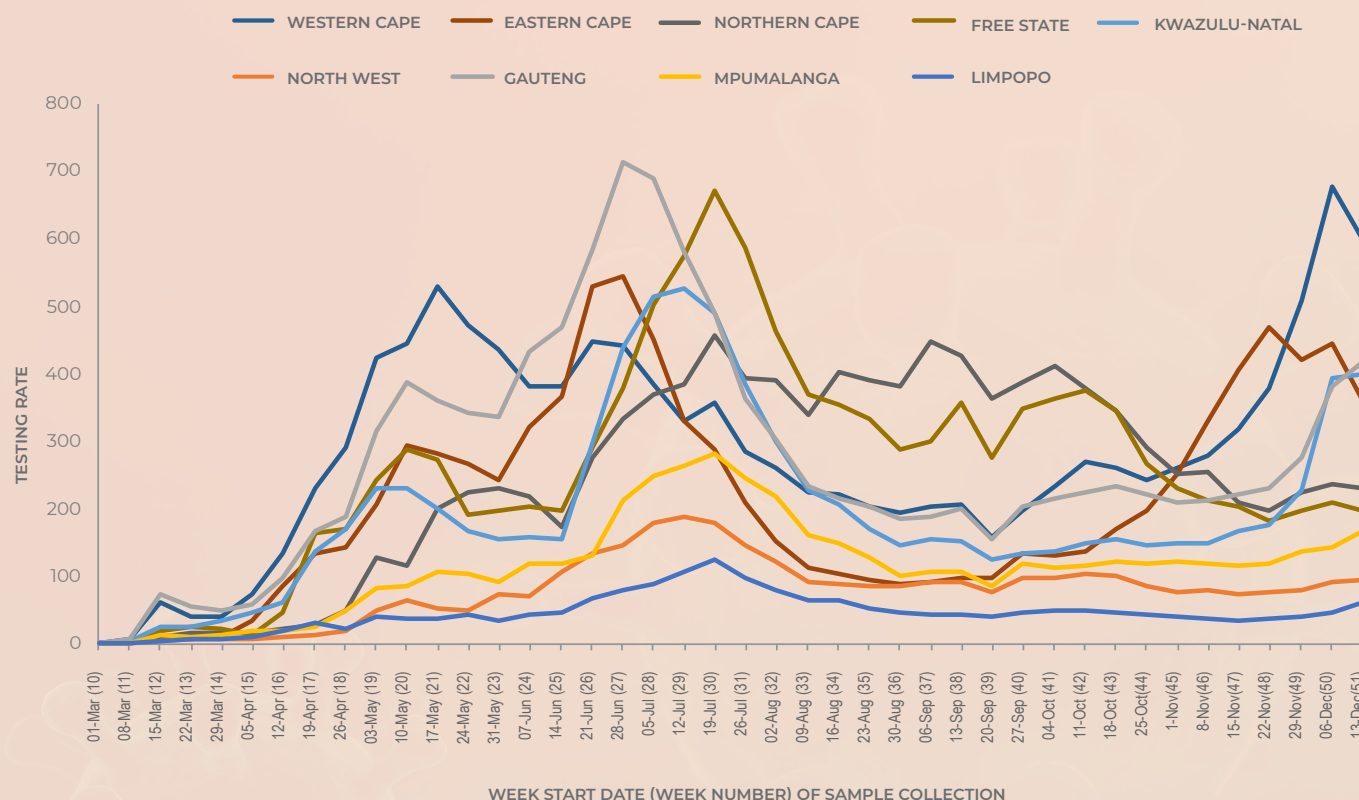
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## Testing by province

Gauteng (32.1%) performed the largest number of tests in week 51, followed by KwaZulu-Natal (22.8%), Western Cape (20.6%), and Eastern Cape (12.0%) provinces (Table 3). Western Cape (599 per 100,000 persons), Gauteng (417 per 100,000 persons), KwaZulu-Natal (399 per 100,000 persons), and Eastern Cape (360 per 100,000 persons) provinces had the highest testing rates in week 51 (Figure 6). Over recent weeks, testing rates have increased in the Western Cape, Gauteng and KwaZulu-Natal, and decreased in the Eastern Cape.

The percentage testing positive in week 51 was highest in the Western Cape (36.9%), KwaZulu-Natal (32.0%), Eastern Cape (30.1%), and Limpopo (21.2%). Percentages testing positive were between 10.7%-16.9%

in Northern Cape, Free State, North West, Gauteng, and Mpumalanga in week 51 (Figure 7). Compared to the previous week, the percentage testing positive in week 51 increased in eight of the nine provinces: 4.5% in the Western Cape (32.5% to 36.9%,  $P<0.001$ ), 2.6% in Northern Cape (8.2% to 10.8%,  $P=0.001$ ), 3.0% in Free State (7.7% to 10.7%,  $P<0.001$ ), 7.6% in KwaZulu-Natal (24.3% to 32.0%,  $P<0.001$ ), 5.2% in North West (11.6% to 16.9%,  $P<0.001$ ), 4.0% in Gauteng (12.8% to 16.8%,  $P<0.001$ ), 3.6% in Mpumalanga (8.5% to 12.1%,  $P<0.001$ ), and 6.4% in Limpopo (14.8% to 21.2%,  $P<0.001$ ). The percentage testing positive in week 51 compared to week 50 decreased in Eastern Cape ( $P<0.001$ ). The percentage testing positive was higher than the national average, not weighted for population size, in the Western Cape, Eastern 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 – 19 December 2020

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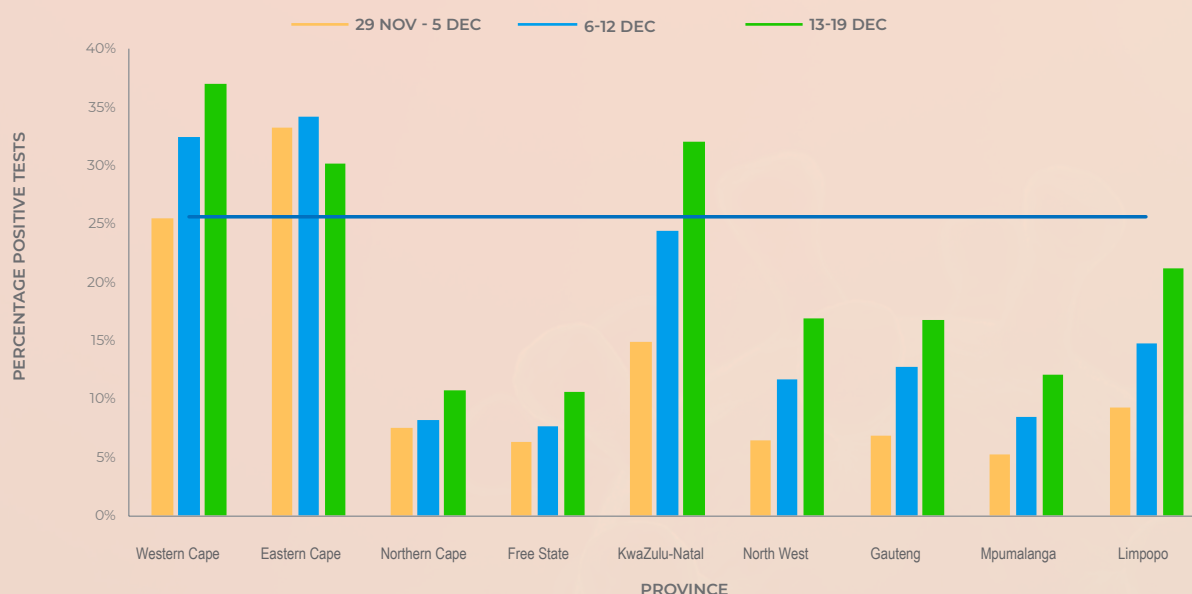
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**Table 3.** Weekly number of tests performed and positive tests, by province, South Africa, 29 November – 19 December 2020

Province	Population <sup>a</sup>	29 Nov – 5 Dec		6-12 Dec		13-19 Dec		Tests per 100,000 persons	Change in percentage positive <sup>b</sup>
		No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)		
Western Cape	7005741	35670	9058 (25.4)	47469	15413 (32.5)	41988	15503 (36.9)	599	4.5%
Eastern Cape	6734001	28284	9383 (33.2)	29949	10245 (34.2)	24269	7302 (30.1)	360	-4.1%
Northern Cape	1292786	2893	216 (7.5)	3069	252 (8.2)	2961	319 (10.8)	229	2.6%
Free State	2928903	5745	362 (6.3)	6156	472 (7.7)	5809	619 (10.7)	198	3.0%
KwaZulu-Natal	11531628	26217	3909 (14.9)	45196	11001 (24.3)	45975	14699 (32.0)	399	7.6%
North West	4108816	3329	214 (6.4)	3752	437 (11.6)	3942	665 (16.9)	96	5.2%
Gauteng	15488137	42781	2940 (6.9)	59111	7549 (12.8)	64644	10869 (16.8)	417	4.0%
Mpumalanga	4679786	6350	336 (5.3)	6756	574 (8.5)	7817	947 (12.1)	167	3.6%
Limpopo	5852553	2424	223 (9.2)	2747	406 (14.8)	3598	763 (21.2)	61	6.4%
Unknown		326	9 (2.8)	591	37 (6.3)	633	34 (5.4)		-0.9%
<b>Total</b>	<b>59622350</b>	<b>154019</b>	<b>26650 (17.3)</b>	<b>204796</b>	<b>46386 (22.6)</b>	<b>201636</b>	<b>51720 (25.7)</b>	<b>338</b>	<b>3.0%</b>

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

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



**Figure 7.** Weekly percentage testing positive, by province, South Africa, 29 November – 19 December 2020. The horizontal blue line shows the national mean for week 51, beginning 13 December 2020.

## Testing in the public sector

In the public sector, the percentage testing positive increased in the past week (24.2% in week 50 to 26.2% in week 51,  $P < 0.001$ ) (Table 4). The percentage testing positive in week 51 was highest in the Western Cape

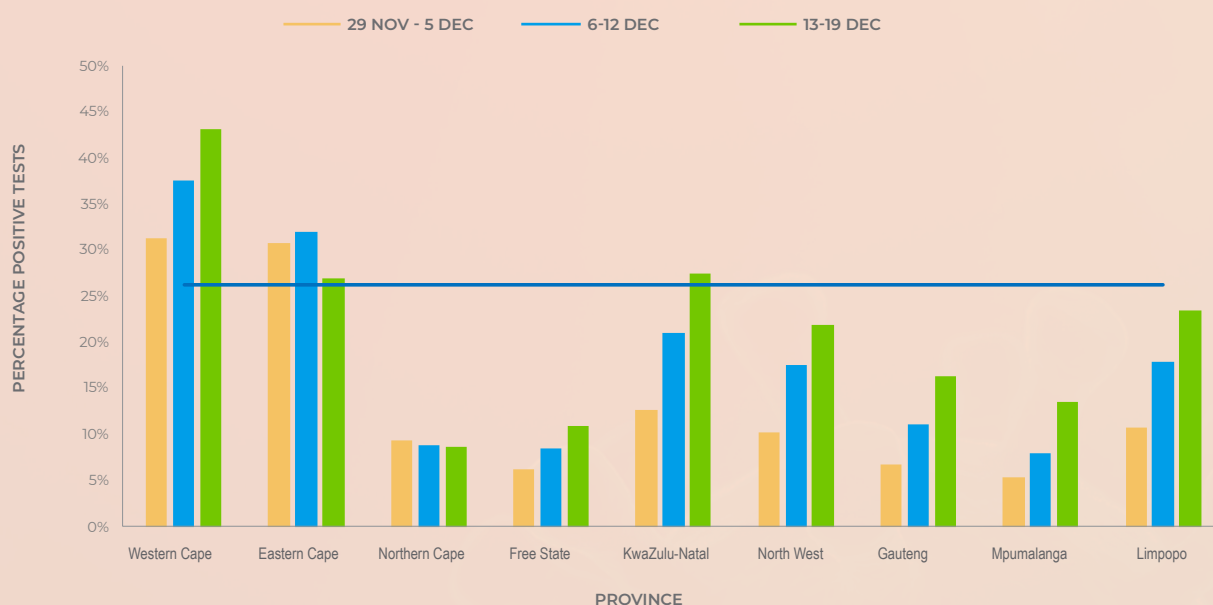
(43.2%), KwaZulu-Natal (27.5%), and Eastern Cape (27.0%). The percentage testing positive in the public sector remains higher than the national average, not weighted for population size, in the Western Cape, Eastern Cape, and KwaZulu-Natal provinces (Figure 8).

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**Table 4.** Weekly number of tests conducted and positive tests in the public sector, by province, South Africa, 29 November – 19 December 2020

Province	29 Nov – 5 Dec		6-12 Dec		13-19 Dec	
	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	15970	4995 (31.3)	20654	7776 (37.6)	15245	6587 (43.2)
Eastern Cape	19831	6085 (30.7)	21646	6920 (32.0)	17732	4785 (27.0)
Northern Cape	1760	163 (9.3)	1869	164 (8.8)	1657	144 (8.7)
Free State	2882	179 (6.2)	3220	271 (8.4)	2863	313 (10.9)
KwaZulu-Natal	13045	1653 (12.7)	22830	4790 (21.0)	19608	5401 (27.5)
North West	1229	125 (10.2)	1522	268 (17.6)	1506	329 (21.8)
Gauteng	12419	832 (6.7)	16576	1826 (11.0)	17072	2779 (16.3)
Mpumalanga	3066	164 (5.3)	3032	241 (7.9)	2497	338 (13.5)
Limpopo	694	75 (10.8)	798	142 (17.8)	993	233 (23.5)
Unknown	322	8 (0.0)	582	36 (6.2)	625	34 (5.4)
<b>Total</b>	<b>71218</b>	<b>14279 (20.0)</b>	<b>92729</b>	<b>22434 (24.2)</b>	<b>79798</b>	<b>20943 (26.2)</b>



**Figure 8.** Weekly percentage testing positive in the public sector, by province, South Africa, 29 November – 19 December 2020. The horizontal blue line shows the national mean for week 51, beginning 13 December 2020.

## Public facilities with high proportions testing positive

Table 5.1 shows the 25 public sector 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 13 – 19 December, with the highest proportion testing positive nationally. This week's public facility list is dominated by facilities in the Western Cape (16), while 7 are in KwaZulu-Natal and two in the Eastern Cape.



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**Table 5.1** Public sector healthcare facilities with a high proportion testing positive, 13 – 19 December 2020

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Western Cape	35	0.800 (0.667;0.933)
Facility 2	Western Cape	25	0.800 (0.643;0.957)
Facility 3	KwaZulu-Natal	83	0.795 (0.708;0.882)
Facility 4	Western Cape	46	0.761 (0.638;0.884)
Facility 5	Western Cape	66	0.742 (0.637;0.848)
Facility 6	Western Cape	232	0.694 (0.635;0.753)
Facility 7	Eastern Cape	26	0.692 (0.515;0.870)
Facility 8	Western Cape	31	0.677 (0.513;0.842)
Facility 9	Western Cape	75	0.653 (0.546;0.761)
Facility 10	Western Cape	54	0.648 (0.521;0.776)
Facility 11	Eastern Cape	64	0.625 (0.506;0.744)
Facility 12	Western Cape	81	0.617 (0.511;0.723)
Facility 13	Western Cape	67	0.612 (0.495;0.729)
Facility 14	Western Cape	203	0.611 (0.544;0.678)
Facility 15	KwaZulu-Natal	25	0.600 (0.408;0.792)
Facility 16	Western Cape	30	0.600 (0.425;0.775)
Facility 17	KwaZulu-Natal	35	0.600 (0.438;0.762)
Facility 18	Western Cape	25	0.600 (0.408;0.792)
Facility 19	Western Cape	34	0.588 (0.423;0.754)
Facility 20	KwaZulu-Natal	46	0.587 (0.445;0.729)
Facility 21	Western Cape	36	0.583 (0.422;0.744)
Facility 22	KwaZulu-Natal	55	0.582 (0.451;0.712)
Facility 23	KwaZulu-Natal	148	0.574 (0.495;0.654)
Facility 24	KwaZulu-Natal	56	0.571 (0.442;0.701)
Facility 25	Western Cape	51	0.569 (0.433;0.705)

95% CI: 95% confidence interval; PTP: positive test proportion

Table 5.2 shows the 25 private sector 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 13 – 19 December, with the highest

proportion testing positive nationally. Private sector facilities with high proportions testing positive are concentrated in KwaZulu-Natal (10), the Western Cape (9) and the Eastern Cape (5).



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**Table 5.2** Private sector healthcare facilities with a high proportion testing positive, 13 – 19 December 2020

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Western Cape	47	0.809 (0.696;0.921)
Facility 2	KwaZulu-Natal	95	0.632 (0.535;0.729)
Facility 3	KwaZulu-Natal	52	0.615 (0.483;0.748)
Facility 4	Western Cape	143	0.601 (0.521;0.682)
Facility 5	Gauteng	56	0.589 (0.460;0.718)
Facility 6	KwaZulu-Natal	258	0.578 (0.517;0.638)
Facility 7	Western Cape	28	0.571 (0.388;0.755)
Facility 8	Eastern Cape	237	0.561 (0.498;0.624)
Facility 9	Eastern Cape	61	0.557 (0.433;0.682)
Facility 10	KwaZulu-Natal	51	0.549 (0.412;0.686)
Facility 11	Eastern Cape	39	0.538 (0.382;0.695)
Facility 12	Western Cape	110	0.536 (0.443;0.630)
Facility 13	Western Cape	32	0.531 (0.358;0.704)
Facility 14	Western Cape	134	0.530 (0.445;0.614)
Facility 15	KwaZulu-Natal	99	0.525 (0.427;0.624)
Facility 16	Eastern Cape	483	0.520 (0.475;0.564)
Facility 17	KwaZulu-Natal	35	0.514 (0.349;0.680)
Facility 18	KwaZulu-Natal	41	0.512 (0.359;0.665)
Facility 19	Western Cape	418	0.512 (0.464;0.560)
Facility 20	KwaZulu-Natal	218	0.509 (0.443;0.576)
Facility 21	KwaZulu-Natal	44	0.500 (0.352;0.648)
Facility 22	Western Cape	168	0.494 (0.418;0.570)
Facility 23	Western Cape	156	0.494 (0.415;0.572)
Facility 24	KwaZulu-Natal	41	0.488 (0.335;0.641)
Facility 25	Eastern Cape	164	0.488 (0.411;0.564)

95% CI: 95% confidence interval; PTP: positive test proportion

## Health district-level results

There are important changes in this section of the report compared to previous reports. Tests conducted in private sector facilities have been geo-located which enables the evaluation of aggregate proportions testing positive in districts and health sub-districts in the country, taking into account the results of both public sector and private sector tests. Previous weeks' reports only examined proportions testing positive in public sector facilities and therefore direct comparisons should not be drawn between the data presented in previous reports, and that presented here. Where data are presented showing the preceding week's data, those data have been updated to include both public and private test results.

The results for the 25 municipalities and metropolitan health sub-districts showing the greatest proportions testing positive in the week of 13 – 19 December 2020 are shown in Table 6. Districts showing the greatest proportions testing positive are concentrated in the Western Cape (14 districts) and the Eastern Cape (5). The remaining six districts are in KwaZulu-Natal (4), the North West (1) and the Northern Cape (1).

All 25 districts with the highest proportion testing positive in the week from 13-19 December showed a proportion testing positive greater than 40%. In one district, the proportion testing positive was greater than 60%, and in 6 others it was greater than 50%. A significant increase over the previous week was observed in 19 of the 25 districts.

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**Table 6.** Health sub-districts with the highest proportion testing positive based on public and private sector data for the week of 13-19 December 2020

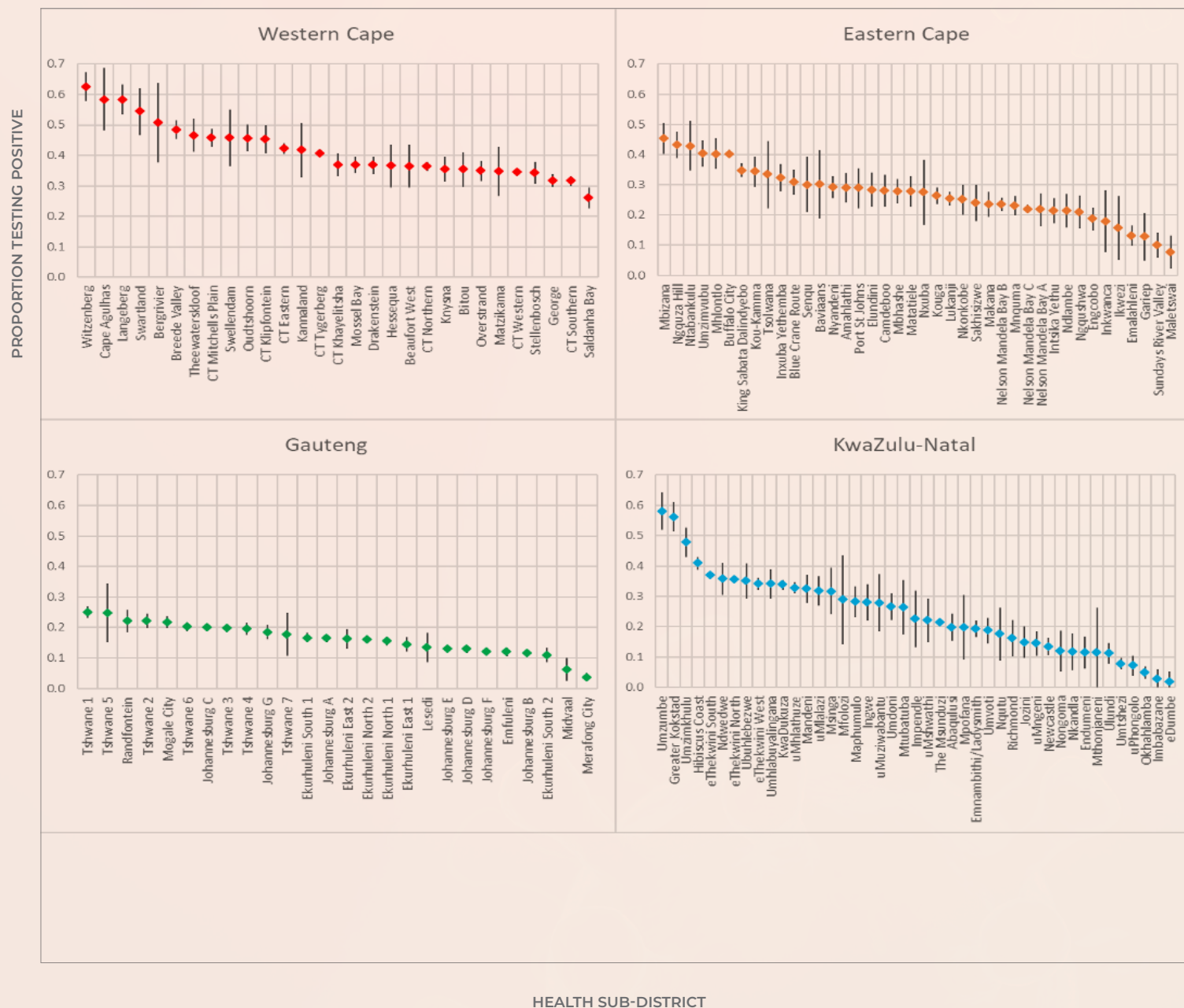
Health district or sub-district	Province	PTP (95% CI)	Previous week
Witzenberg	Western Cape	0.627 (0.580-0.673)	0.329 (0.255-0.402)
Cape Agulhas	Western Cape	0.584 (0.482-0.686)	0.087 (0.014-0.161)
Langeberg	Western Cape	0.584 (0.535-0.633)	0.138 (0.065-0.211)
Umzumbe	KwaZulu-Natal	0.580 (0.519-0.642)	0.164 (0.030-0.297)
Greater Kokstad	KwaZulu-Natal	0.563 (0.514-0.612)	0.353 (0.240-0.467)
Swartland	Western Cape	0.544 (0.467-0.622)	0.209 (0.123-0.295)
Bergrivier	Western Cape	0.508 (0.377-0.638)	...
Breede Valley	Western Cape	0.484 (0.454-0.515)	0.230 (0.164-0.296)
Ubuntu	Northern Cape	0.480 (0.330-0.629)	0.324 (0.250-0.399)
Umzimkhulu	KwaZulu-Natal	0.479 (0.431-0.527)	0.095 (0.046-0.145)
Theewaterskloof	Western Cape	0.465 (0.411-0.520)	0.201 (0.147-0.255)
CT Mitchells Plain	Western Cape	0.458 (0.429-0.486)	0.192 (0.159-0.226)
Swellendam	Western Cape	0.458 (0.365-0.550)	...
Oudtshoorn	Western Cape	0.458 (0.415-0.501)	0.286 (0.232-0.341)
Mbizana	Eastern Cape	0.454 (0.403-0.505)	0.107 (0.025-0.188)
CT Klipfontein	Western Cape	0.453 (0.408-0.499)	0.192 (0.142-0.243)
Ngquza Hill	Eastern Cape	0.432 (0.388-0.476)	0.255 (0.186-0.323)
Ntabankulu	Eastern Cape	0.429 (0.347-0.511)	...
CT Eastern	Western Cape	0.423 (0.405-0.440)	0.210 (0.168-0.253)
Kannaland	Western Cape	0.417 (0.327-0.506)	0.175 (0.084-0.265)
Moses Kotane	North-West	0.413 (0.286-0.540)	...
Hibiscus Coast	KwaZulu-Natal	0.408 (0.387-0.430)	0.150 (0.114-0.185)
CT Tygerberg	Western Cape	0.408 (0.396-0.421)	0.190 (0.171-0.209)
Umzimvubu	Eastern Cape	0.404 (0.361-0.448)	0.268 (0.203-0.333)
Mhlontlo	Eastern Cape	0.403 (0.353-0.453)	0.421 (0.361-0.482)

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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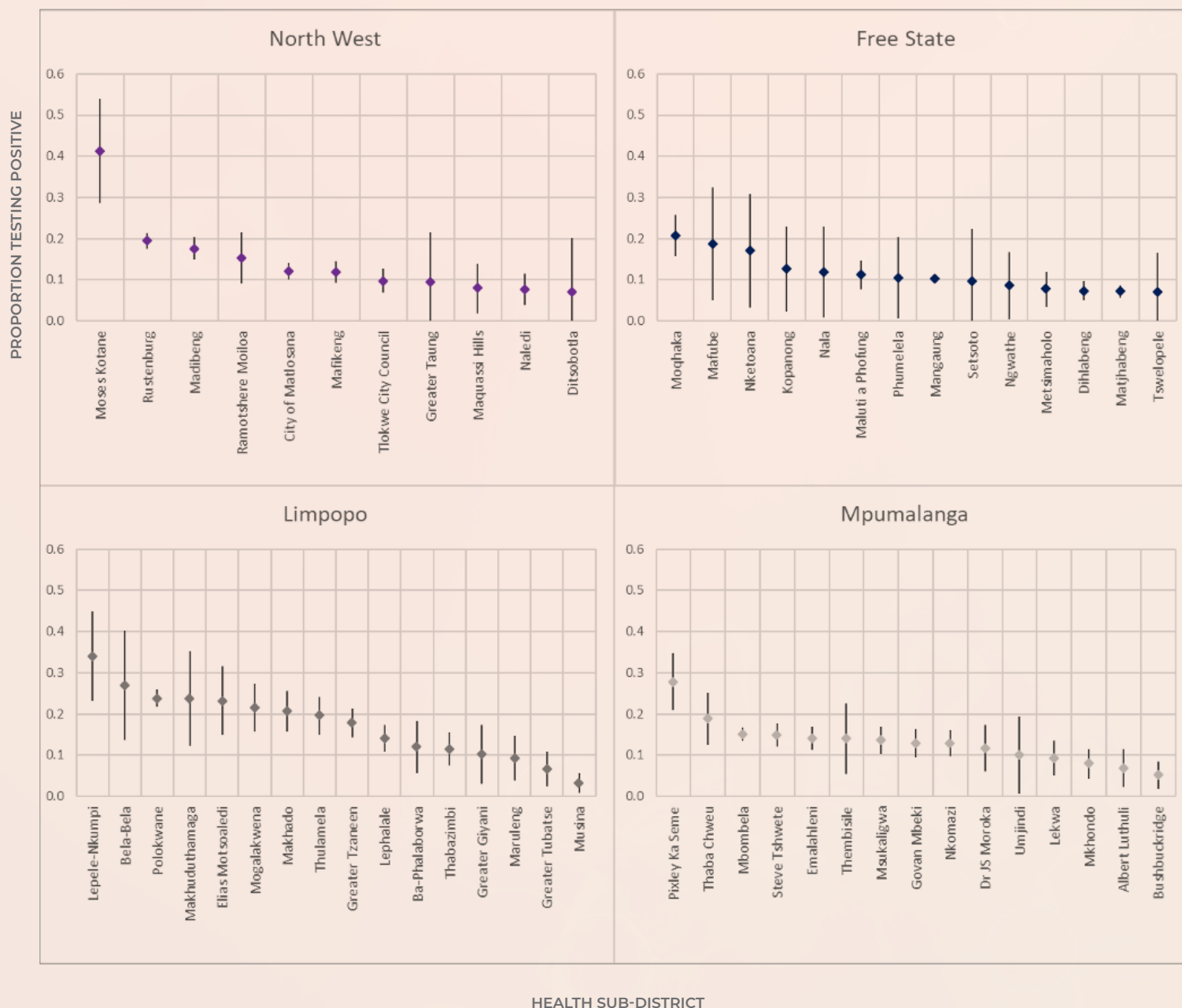


**Figure 9.1** Proportions testing positive by health sub-district in the Western Cape, Eastern Cape, Gauteng and KwaZulu-Natal provinces based on public and private sector data for the week of 13 – 19 December 2020.



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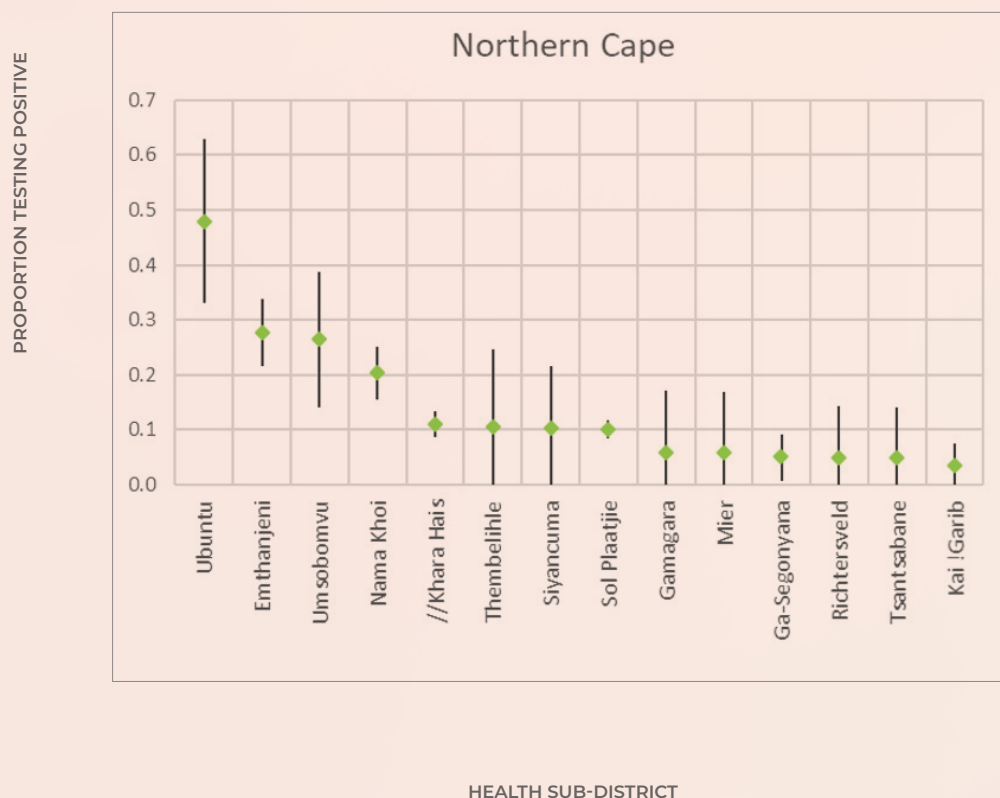


**Figure 9.2** Proportions testing positive by health sub-district in the North West, Free State, Limpopo, and Mpumalanga provinces based on public and private sector data for the week of 13 – 19 December 2020.



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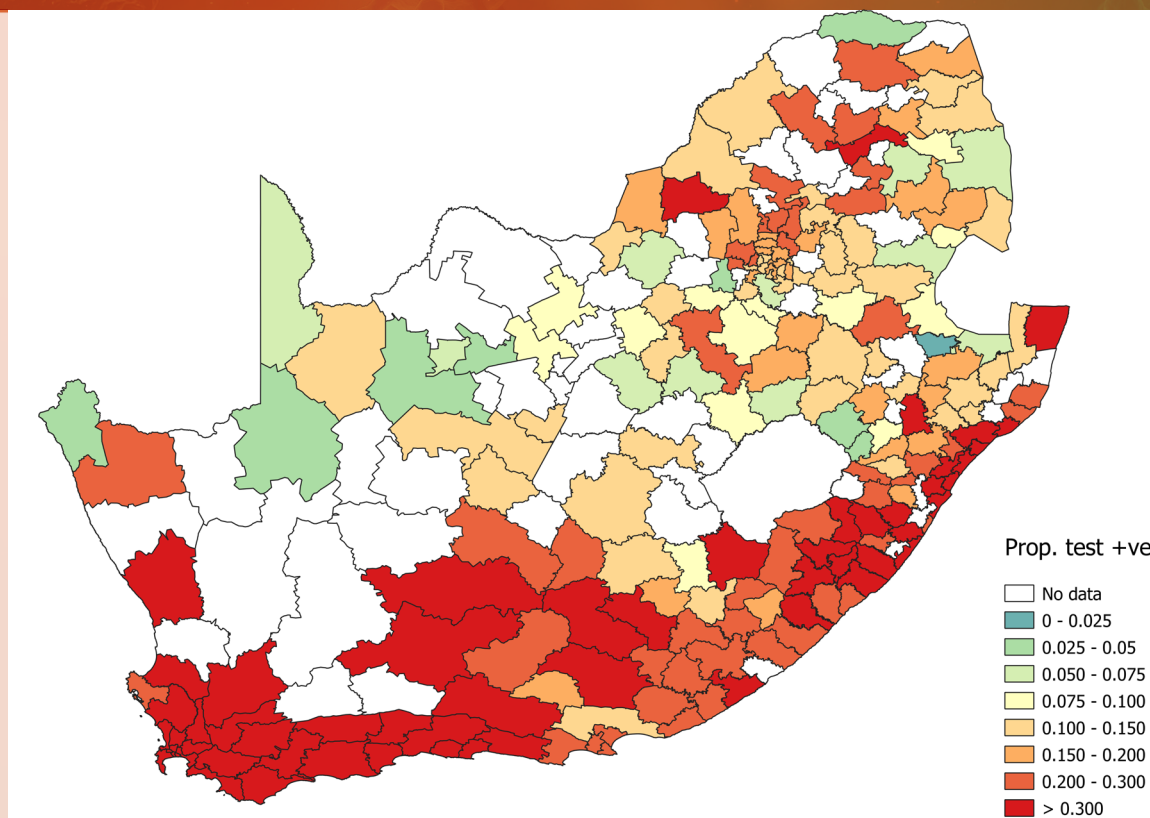


**Figure 9.3** Proportions testing positive by health sub-district in the Northern Cape Province based on public and private sector data for the week of 13 – 19 December 2020.

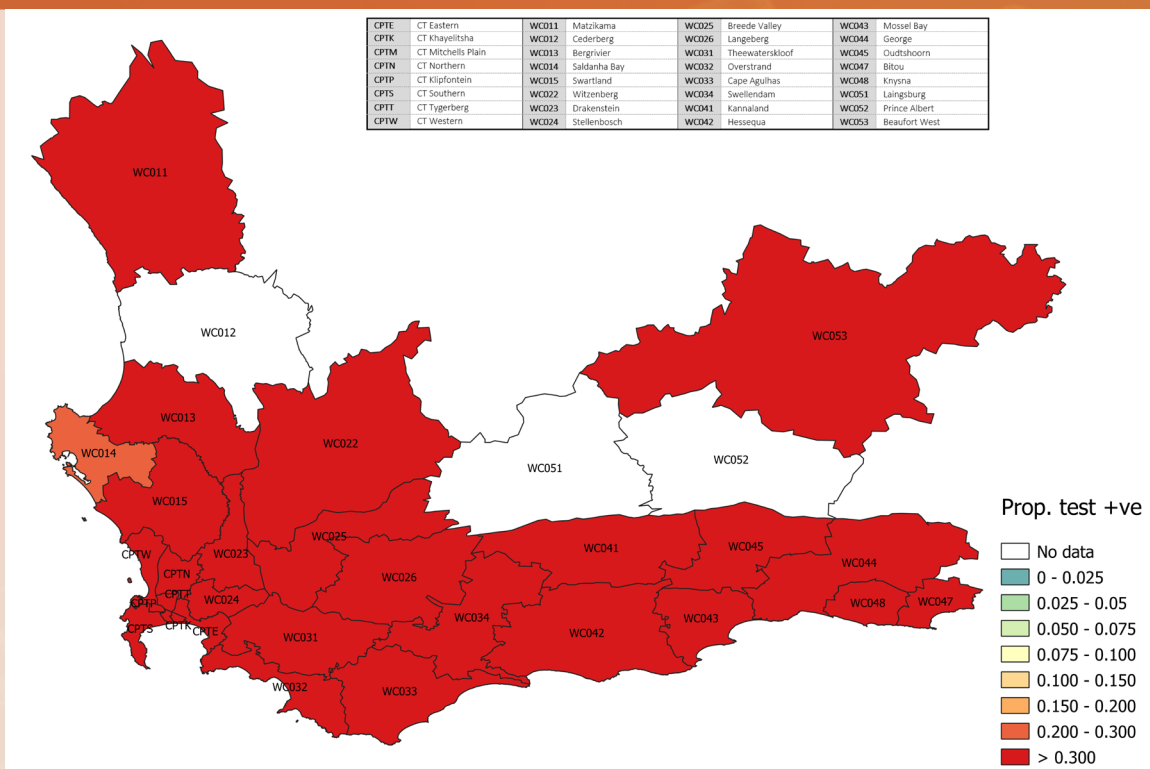
The spatial pattern of adjusted proportions testing positive, including both public and private sector data, by health district and sub-district are shown for South Africa (Figure 10), Western Cape (Figure 11), Eastern Cape (Figure 12), Northern Cape (Figure 13), Free State (Figure 14), KwaZulu-Natal (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 in South Africa for the week of 13 – 19 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%.

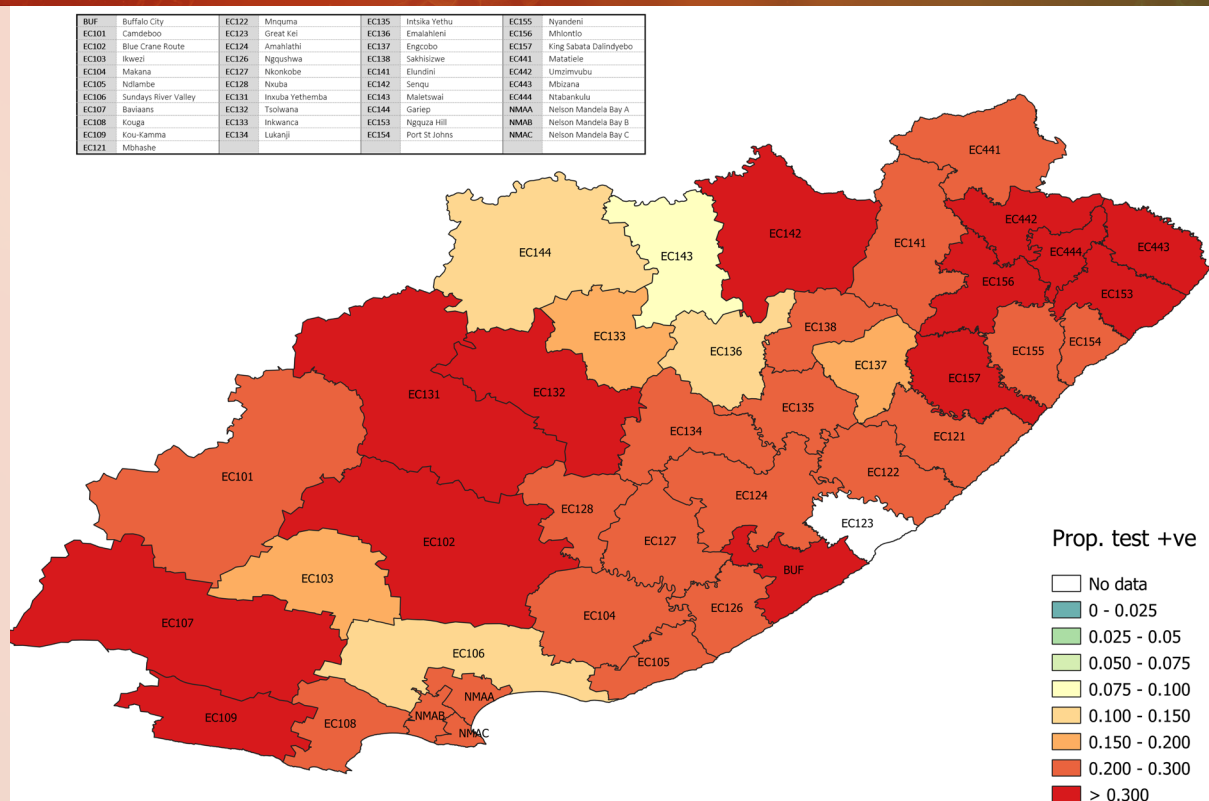


**Figure 11.** Proportion testing positive by health sub-district in the Western Cape province for the week of 13 – 19 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

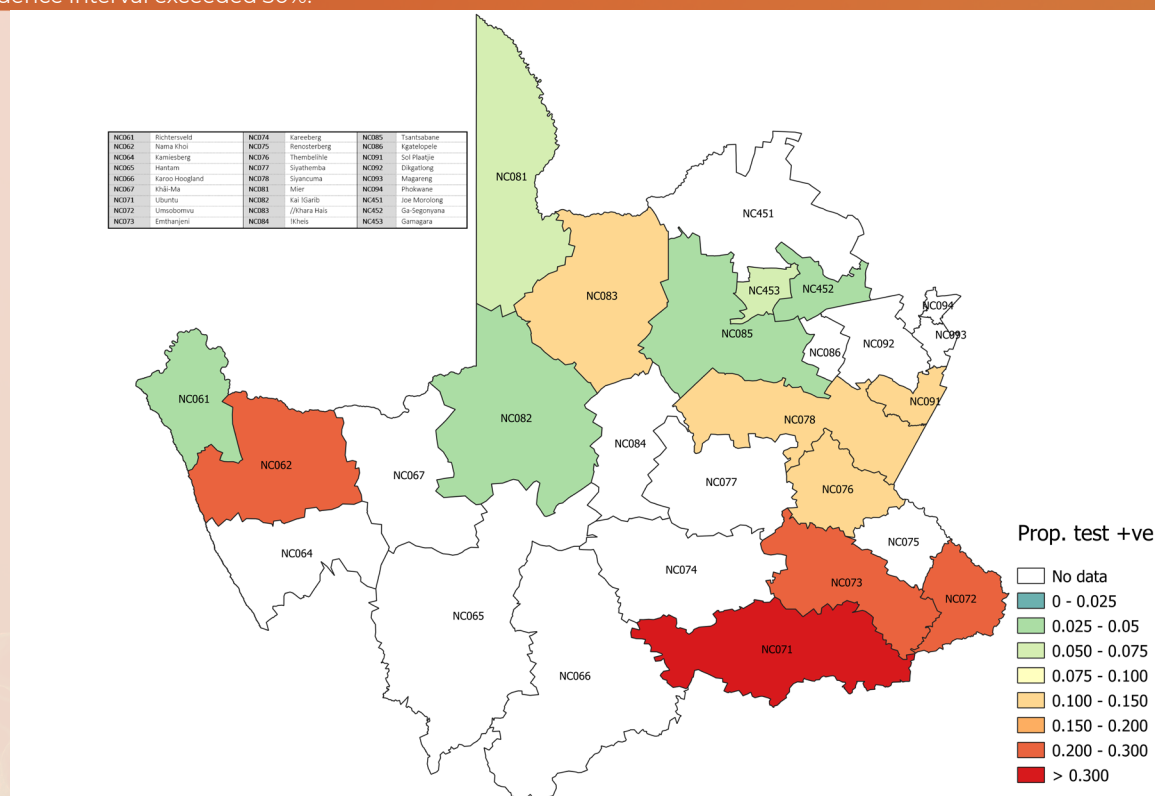
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**Figure 12.** Proportion testing positive by health sub-district in the Eastern Cape province for the week of 13 – 19 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.



**Figure 13.** Proportion testing positive by health sub-district in Northern Cape Province for the week of 13 – 19 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%.

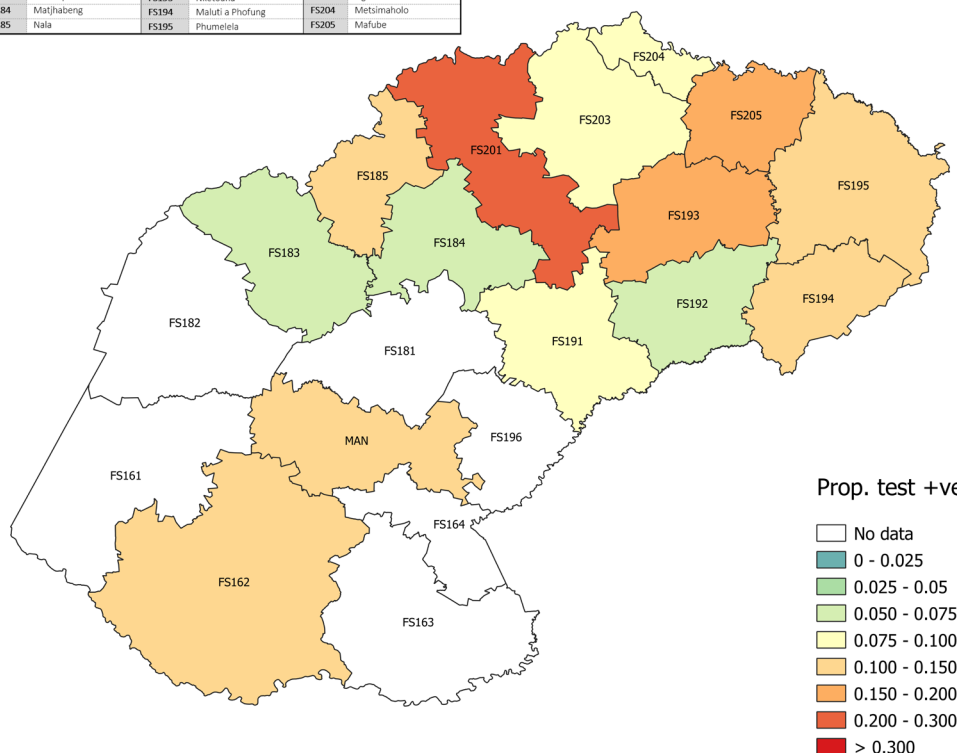


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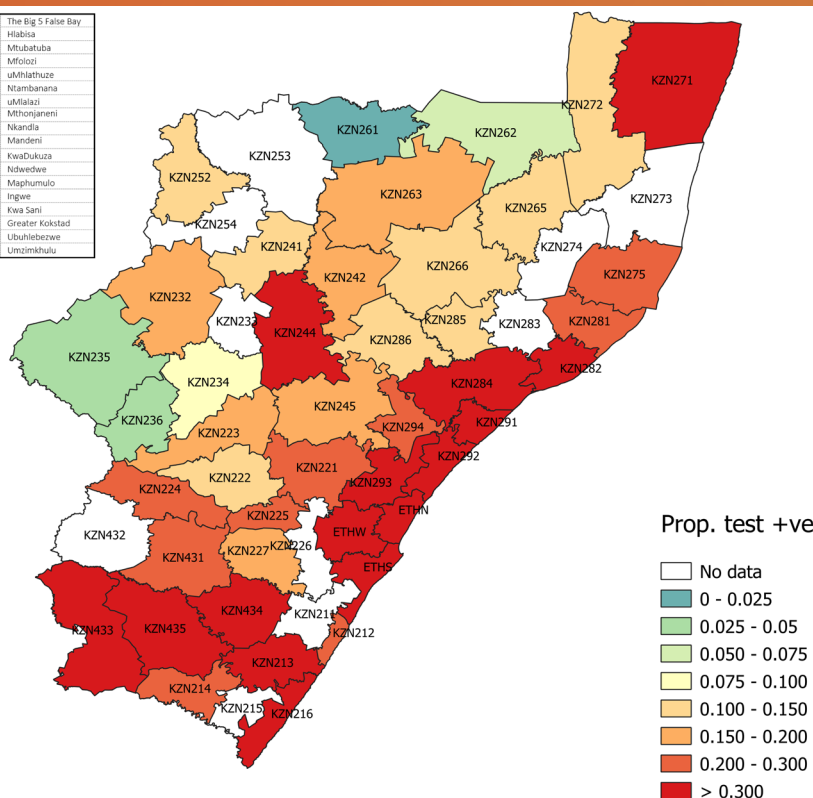
WEEK 51 2020

MAN	Mangaung	FS181	Masilanyana	FS191	Setsotho	FS196	Mantsope
FS161	Letsameeng	FS182	Tokologo	FS192	Dihlabeng	FS201	Moghaka
FS162	Kopanong	FS183	Tswelopele	FS193	Nketoana	FS203	Ngwathe
FS163	Mohokare	FS184	Matjhabeng	FS194	Maluti a Phofung	FS204	Metsimaholo
FS164	Naledi	FS185	Nala	FS195	Phumelela	FS205	Matube



**Figure 14.** Proportion testing positive by health sub-district in Free State Province for the week of 13 – 19 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%.

ETHN	eThekweni North	KZN233	Indaka	KZN273	The Big 5 False Bay
ETHS	eThekweni South	KZN234	Umtshezi	KZN274	Hlabisa
ETHS	eThekweni South	KZN235	Okhahlamba	KZN275	Mtubatuba
ETHW	eThekweni West	KZN236	Inlabasane	KZN281	Mfizi
KZN211	Vulamehlo	KZN241	Endumeni	KZN282	uMkhathuzwe
KZN212	Umdoni	KZN242	Nqutu	KZN283	Ntambanana
KZN213	Umkhumbi	KZN244	Misinga	KZN284	uMlalazi
KZN214	uMkhawabantu	KZN245	Umvoti	KZN285	Mthonjaneni
KZN215	Ezingweni	KZN252	Newcastle	KZN286	Nkandla
KZN216	Hibiscus Coast	KZN253	Emadlangeni	KZN291	Mandeni
KZN221	uMkhawathi	KZN254	Danihauser	KZN292	KwaDukuza
KZN222	uMngeni	KZN261	eDumbe	KZN293	Ndwedwe
KZN223	Mpofana	KZN262	uPhongolo	KZN294	Maphumulo
KZN224	Impendle	KZN263	Abaqulusi	KZN431	Ingwe
KZN225	The Msunduzi	KZN265	Nongoma	KZN432	Kwa Sani
KZN226	Mkhambathini	KZN266	Ulundi	KZN433	Greater Kokstad
KZN227	Richmond	KZN271	Umkhambayalingana	KZN434	Ubuhlebezwe
KZN232	Ennambithi/Ladysmith	KZN272	Jozini	KZN435	Umtsimahulu

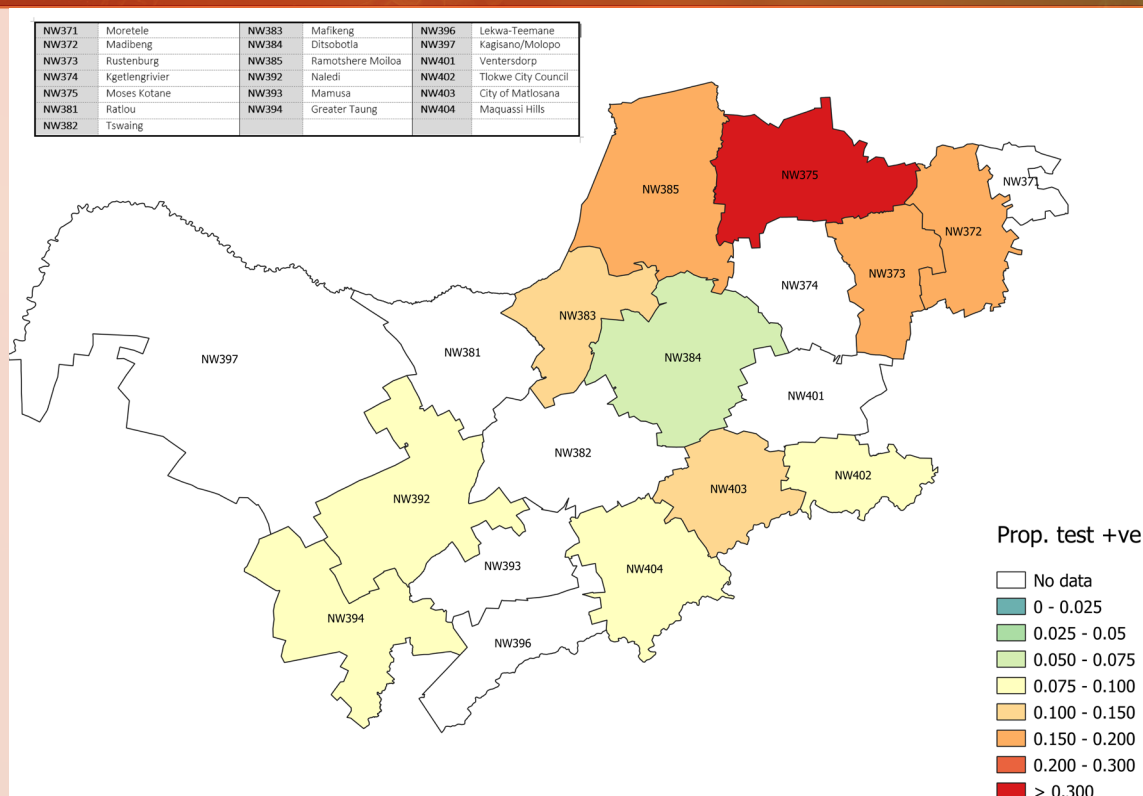


**Figure 15.** Proportion testing positive by health sub-district in KwaZulu-Natal Province for the week of 13 – 19 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

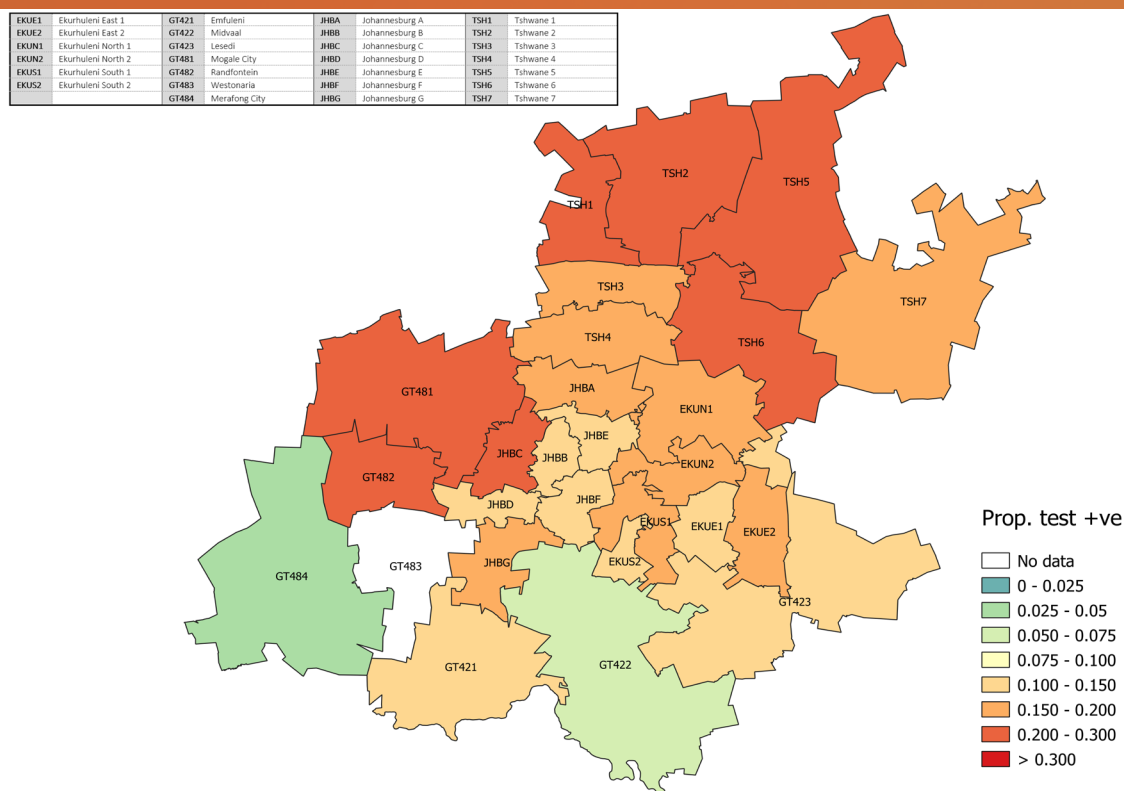


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**Figure 16.** Proportion testing positive by health sub-district in North West Province for the week of 13 – 19 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

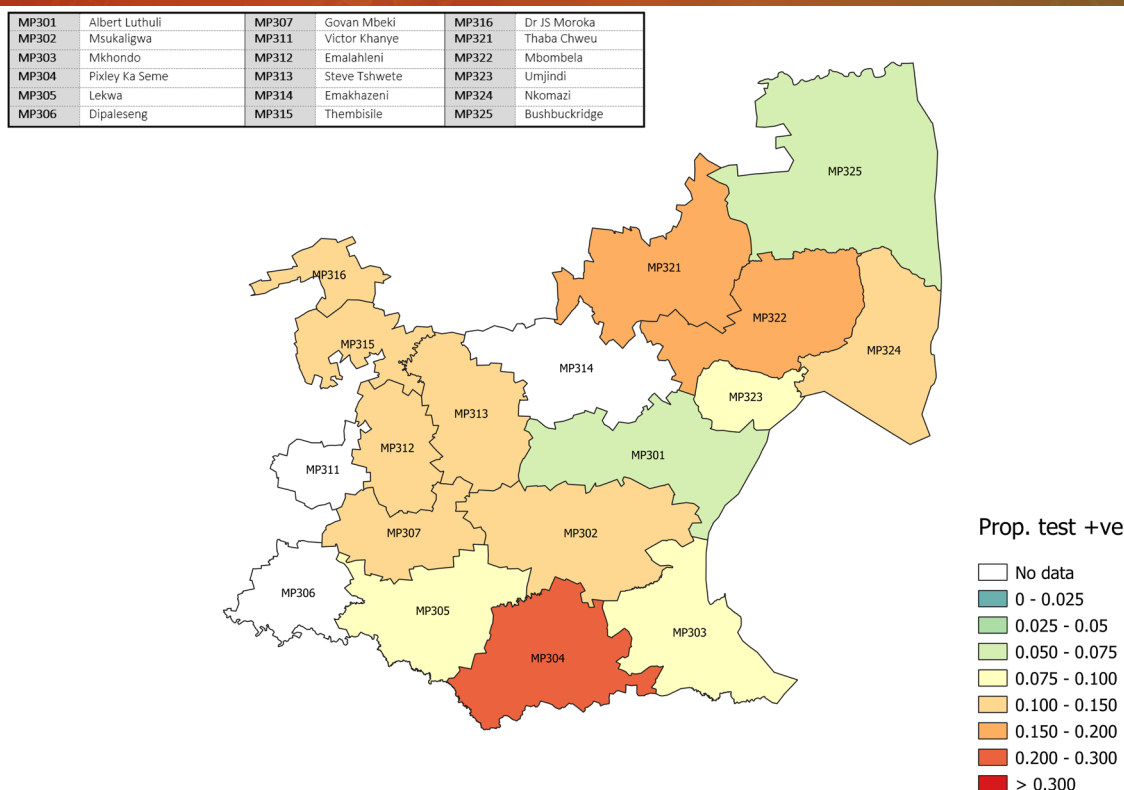


**Figure 17.** Proportion testing positive by health sub-district in Gauteng Province for the week of 13 – 19 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

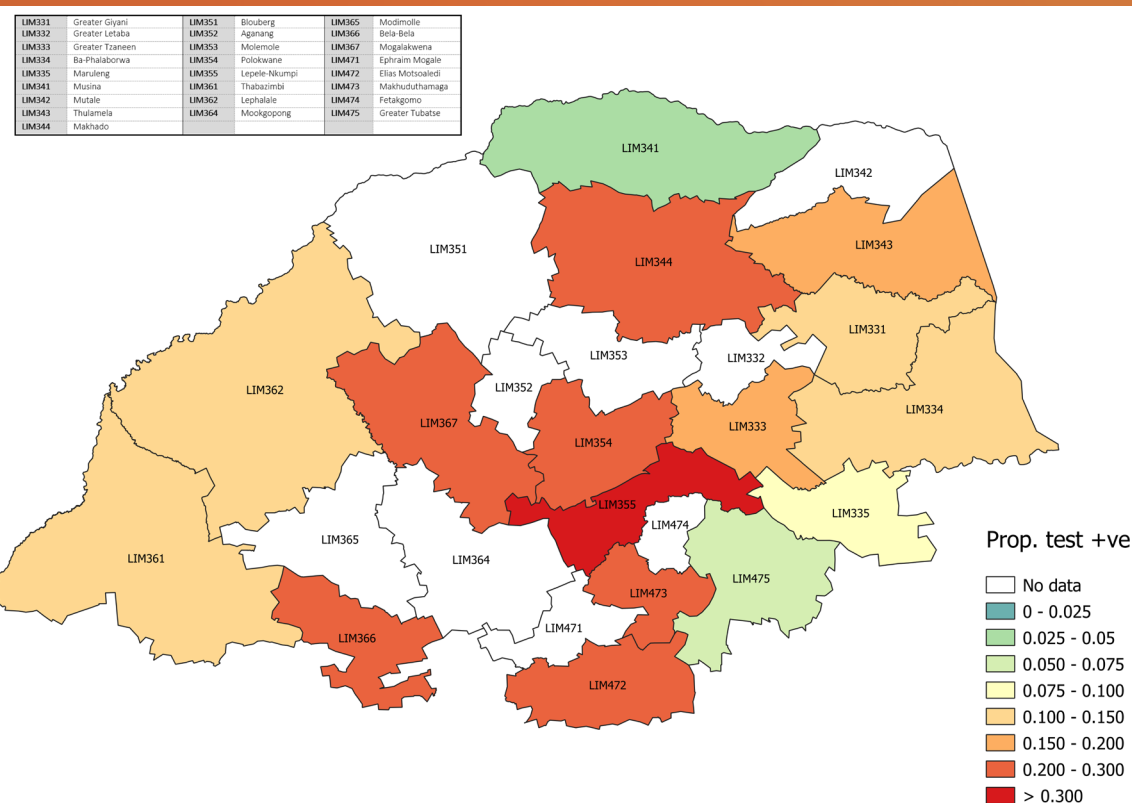
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**Figure 18.** Proportion testing positive by health sub-district in Mpumalanga Province for the week of 13 – 19 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.



**Figure 19.** Proportion testing positive by health sub-district in Limpopo Province for the week of 13 – 19 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%.

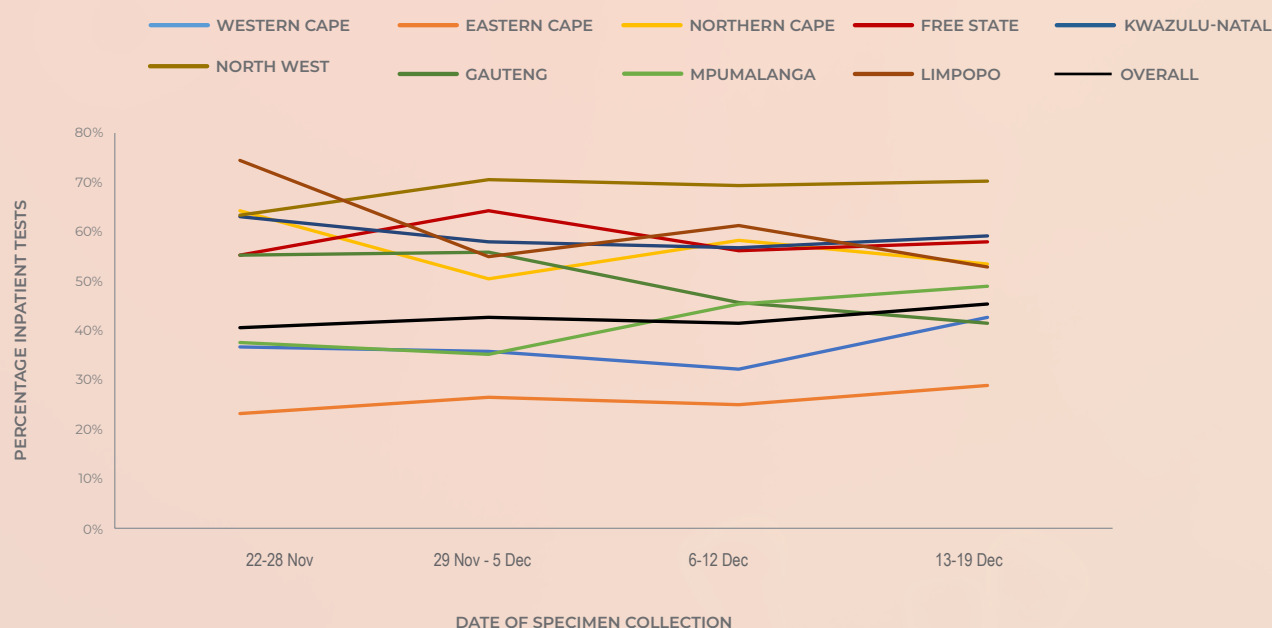
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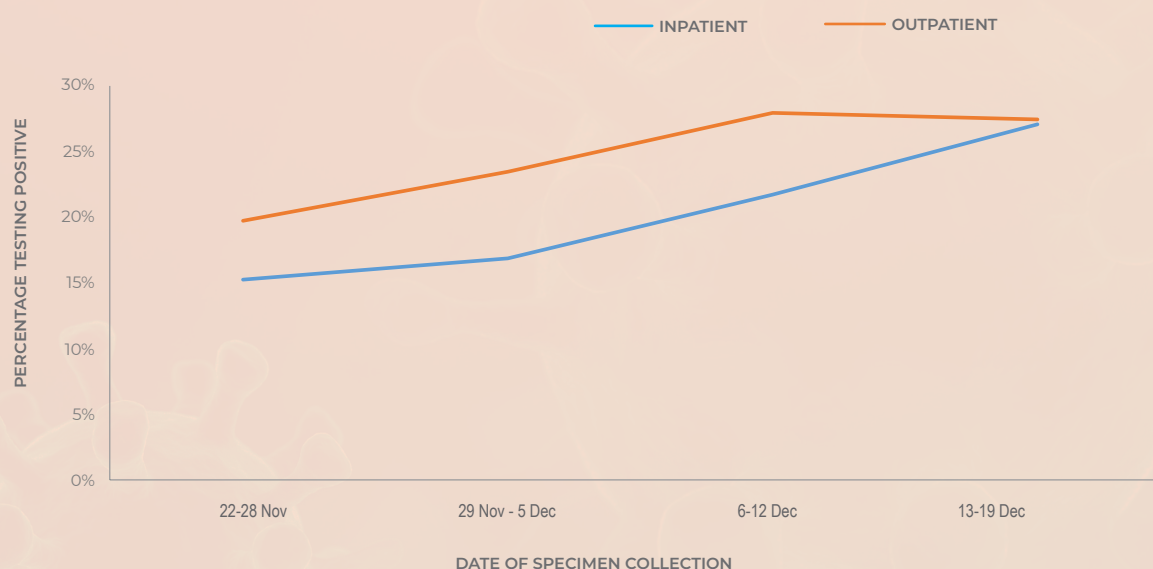
## Testing by patient admission status

In week 51, 45.5% of tests in the public sector were performed for hospitalised patients (Figure 20). The proportion of inpatient tests was highest in North West (70.3%), KwaZulu-Natal (59.3%), and Free State (58.1%) provinces. Comparing week 51 to the previous week, the proportion of inpatient tests increased in six provinces: Western Cape, Eastern Cape, Free State, Western Cape, Eastern Cape, Free State,

KwaZulu-Natal, North West, and Mpumalanga. The percentage testing positive in week 51 increased among inpatients (21.7% to 27.0%), and was similar among inpatients (27.0%) and outpatients (27.4%) (Figure 21). In the public sector in week 51 the mean laboratory turnaround time continued to be lower for inpatients (2.1 days) compared to outpatients (3.3 days) (Figure 22).



**Figure 20.** Percentage of inpatient tests performed in the public sector by province, 22 November -19 December 2020



**Figure 21.** Percentage testing positive by patient admission status in the public sector, 22 November - 19 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, 22 November-19 December 2020

## Testing by age and sex

The mean age of individuals tested in week 51 was 38.1 years, slightly higher than the previous week's (30.0 years). The mean age of individuals with a positive test in week 51 was 41.8 years, slightly higher than the previous week (40.1 years). The mean age of individuals with a positive test in week 51 was slightly higher in

females (42.2 years) compared to males (41.3 years,  $P < 0.001$ ) (Table 7). The sex ratio (the number of males per 100 females) of individuals with a positive test in week 51 was 78.2. In both sexes the proportion testing positive in week 51 was higher than the previous two weeks in adults aged  $\geq 30$  years, with marked increases observed in adults aged  $\geq 60$  years. The proportion testing positive decreased compared to the previous week in individuals aged 10-19 years (Figure 23).

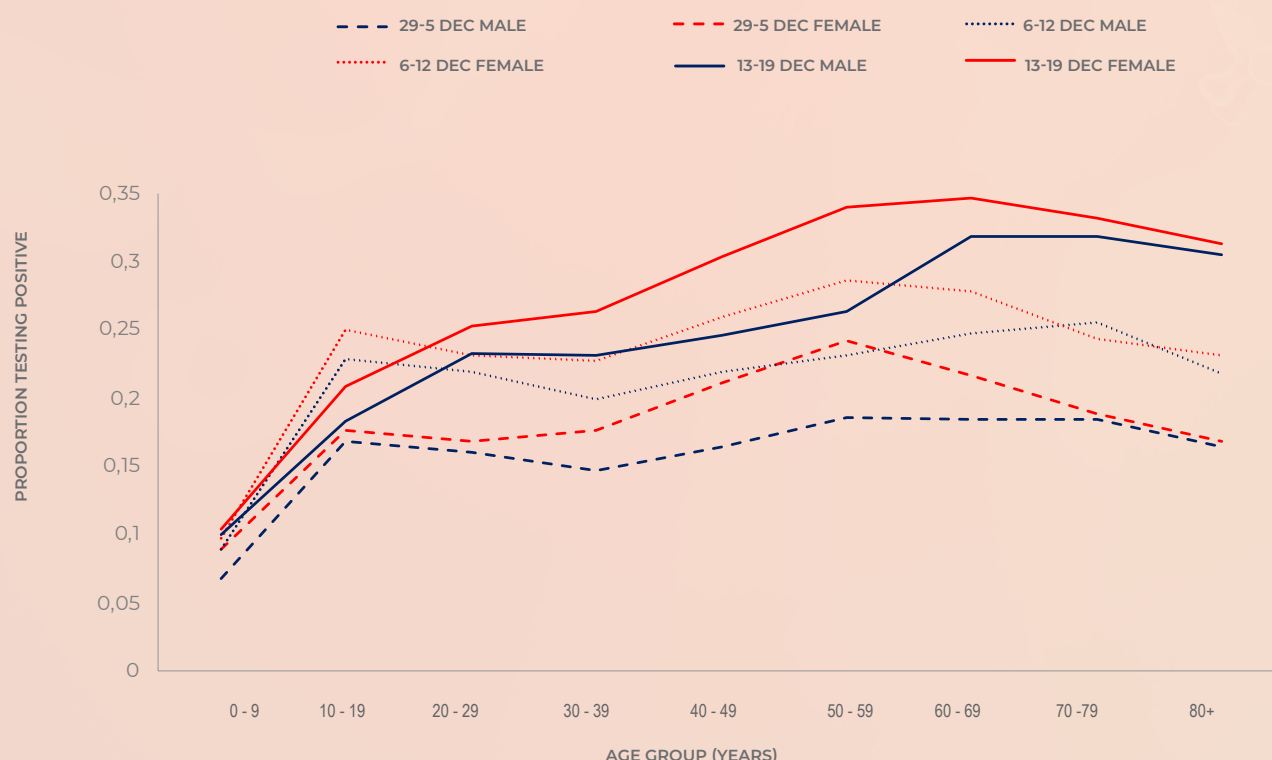
**Table 7.** Mean age and sex ratio of individuals tested, South Africa, 22 November - 19 December 2020

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
48	22 November	38.5	39.2	41.5	41.6	87.3	72.7
49	29 November	38.3	39.1	40.8	41.5	87.2	73.2
50	6 December	37.6	38.5	39.7	40.5	86.2	75.8
51	13 December	38.0	38.9	41.3	42.2	91.4	78.2



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**Figure 23.** Weekly proportion testing positive by age group and sex, South Africa, 29 November - 19 December 2020

From week 48 to week 51, the percentage testing positive increased by 10.6% in males (from 13.1% to 23.7%) and increased by 11.9% in females (from 15.7% to 27.6%) (Table 8). In week 51 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  $\geq 70$  years ( $P=0.249$ ).

**Table 8.** Percentage testing positive by sex and week, South Africa, 22 November – 19 December 2020

Age (years)	22-28 Nov		29 Nov-5 Dec		6-12 Dec		13-19 Dec	
	Male	Female	Male	Female	Male	Female	Male	Female
0-19	9.0%	11.4%	12.1%	14.0%	17.0%	19.2%	15.0%	16.6%
20-39	12.8%	14.5%	15.2%	17.3%	20.8%	22.8%	23.1%	25.8%
40-59	14.4%	19.3%	17.3%	22.4%	22.4%	27.1%	25.4%	32.0%
60-69	16.3%	17.8%	18.5%	21.6%	24.8%	27.8%	31.7%	34.6%
70+	14.1%	13.8%	17.8%	18.2%	24.6%	23.9%	31.4%	32.5%
<b>Total</b>	<b>13.1%</b>	<b>15.7%</b>	<b>15.8%</b>	<b>18.8%</b>	<b>21.2%</b>	<b>24.1%</b>	<b>23.7%</b>	<b>27.6%</b>

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## Limitations

- A backlog in testing of samples by laboratories affects the reported numbers of tests performed. As a result, numbers tested during this period may change in subsequent reports.
- If higher-priority specimens were tested preferentially, this would likely result in an inflated proportion testing positive.
- Different and changing testing strategies (targeted vs. mass testing) used by different provinces makes percentage testing positive difficult to interpret and compare.
- Health district and sub-district level were mapped based on the testing facility and not place of residence.
- Patient admission status was categorised based on the reported patient facility and may not reflect whether the patient was actually admitted to hospital.

## CONCLUSIONS

Weekly testing volumes peaked in week 28 (beginning 5 July), decreased weekly to week 39 (beginning 20 September) and have subsequently increased. The number of tests performed in week 51 was higher than the number of weekly tests performed in weeks 31 to 49. Gauteng (32.1%), KwaZulu-Natal (22.8%), Western Cape (20.8%) and Eastern Cape (12.0%) provinces performed the majority of tests in the past week. Western Cape (599 per 100,000 persons), Gauteng (417 per 100,000 persons), KwaZulu-Natal (399 per 100,000 persons) and Eastern Cape (360 per 100,000 persons) provinces had the highest testing rates in week 51. The overall laboratory turnaround time in week 51 was 1.6 days; 2.5 days in the public sector and 0.9 days in the private sector.

The percentage testing positive decreased from a peak of 30.4% in week 29 to 9.4% in week 43. In week 51 the percentage testing positive was 25.7%, higher than has been observed since week 31 (beginning of 26 July). The percentage testing positive was highest in the Western Cape (36.9%), KwaZulu-Natal (32.0%), Eastern Cape (30.1%) and Limpopo (21.2%) provinces. Percentages testing positive were between 10.7% -16.9% in Northern Cape, Free State, North West, Gauteng, and Mpumalanga. In week 51, compared to the previous week, the percentage testing positive increased in all provinces except the Eastern Cape, where the percentage testing positive decreased. Of the 25 districts with the highest proportions testing positive in week 51, 14 were in the Western Cape, 5 in the Eastern Cape, 4 in KwaZulu-Natal, and one each in the North West and the Northern Cape.