

SOUTH AFRICA WEEK 49 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 5 December 2020 (Week 49 of 2020).

### **HIGHLIGHTS**

- In the period 1 March 2020 through 5 December 2020, 4,710,539 laboratory tests for SARS-CoV-2 were conducted nationally
- Weekly testing volumes have decreased since a peak in week 28. The number of tests performed in week 49 was higher than the weekly number of tests performed since week 32 (beginning 2 August)
- Western Cape (468 per 100,000 persons) and Eastern Cape (322 per 100,000 persons) provinces had the highest testing rates in week 49
- Percentage testing positive decreased from a peak of 30.5% in week 29 to 9.5% in week 43. In week 49 the percentage testing positive was 16.6%, higher than has been observed since week 34 (beginning 16 August)
- Percentage testing positive was highest in the Eastern Cape (33.4%), Western Cape (25.0%) and KwaZulu-Natal (14.8%), and was <10% in Northern Cape, Free State, North West, Gauteng, Mpumalanga and Limpopo.
- In week 49, compared to the previous week, the percentage testing positive increased in the Western Cape, Eastern Cape, Free State, KwaZulu-Natal, Gauteng and Limpopo, and did not change in the Northern Cape, North West and Mpumalanga.
- Mean laboratory turnaround time in week 49 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 (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 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 5 December 2020 (week 49).

# Testing volumes and proportion testing positive

From 1 March through 5 December 2020, 4,710,539 laboratory tests for SARS-CoV-2 were performed. The number of tests performed increased to week 28, with the highest number of tests performed in week 28 (n=268,904), and subsequently decreased. In week 49, 138,646 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 – 5 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 49 was 16.0% (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 49 was 16.6%, higher than has been observed since week 34 (beginning 16 August) (Figure 2).

Table 1. Weekly number of tests conducted and positive tests, South Africa, 1 March – 5 December 2020

Week number	Week number Week beginning No		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	20902 (0.4)	657	3.1		
13	22-Mar	16814 (0.4)	409	2.4		
14	29-Mar	17184 (0.4)	374	2.2		
15	05-Apr	24479 (0.5)	522	2.1		
16	12-Apr	41623 (0.9)	981	2.4		
17	19-Apr	75597 (1.6)	1851	2.4		
18	26-Apr	89233 (1.9)	2781	3.1		
19	03-May	136363 (2.9)	5286	3.9		
20	10-May	156615 (3.3)	7129	4.6		
21	17-May	155817 (3.3)	10046	6.4		
22	24-May	141111 (3.0)	11037	7.8		
23	31-May	135420 (2.9)	12755	9.4		
24	07-Jun	153157 (3.3)	18784	12.3		
25 26	14-Jun 21-Jun	162584 (3.5) 219510 (4.7)	27996 48153	<u>17.2</u> 21.9		
		265417 (5.6)	66459	25.0		
28			76551	23.0 28.5		
		268904 (5.7)				
		246654 (5.2)	75161	30.5		
30	19-Jul	232915 (4.9)	69687	29.9		
31	26-Jul	182374 (3.9)	51382	28.2		
32	02-Aug	148614 (3.2)	35379	23.8		
33	09-Aug	115854 (2.5)	22400	19.3		
34	16-Aug	109356 (2.3)	18268	16.7		
35	23-Aug	99154 (2.1)	14036	14.2		
36	30-Aug	89674 (1.9)	10872	12.1		
37	06-Sep	93439 (2.0)	10365	11.1		
38	13-Sep	96943 (2.1)	10504	10.8		
39	20-Sep	78655 (1.7)	8800	11.2		
40	27-Sep	97038 (2.1)	9602	9.9		
41	 04-Oct	102969 (2.2)	 10295	10.0		
42			10464	9.7		
43	18-Oct	110749 (2.4)	10495	9.5		
44				9.6		
45	01-Nov	105983 (2.2)	10531	9.9		
	08-Nov	112187 (2.4)	12963	11.6		
47	15-Nov	121792 (2.6)	16536	13.6		
48	22-Nov	131431 (2.8)	19166	14.6		
	29-Nov	138646 (2.9)	23074	16.6		
Total		4710539 (100.0)	751800	16.0		

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**Figure 2.** Percentage of laboratory tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March – 5 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 5 December, 2,176,460 laboratory tests were conducted in public sector laboratories, with 15.7% testing positive. Over this same period, private sector laboratories conducted 2,534,079 tests, with 16.2% testing positive (Table 2). Overall the public sector has conducted 46.2% of tests and accounted for 45.4% 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 48 to week 49, the percentage testing positive increased by 2.0% in the public sector (17.1% in week 48 to 19.1% in week 49, P<0.001), and increased by 2.8% in the private sector (12.1% to 14.9%, P<0.001). In week 49 the

percentage testing positive continued to be higher in the public sector (19.1%) compared to the private sector (14.9%) (P<0.001).

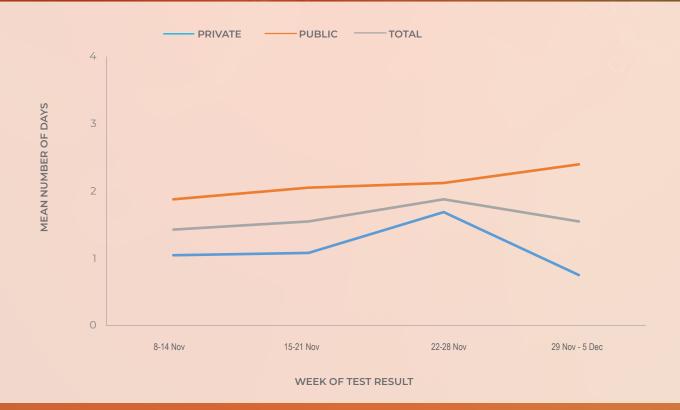
The mean turnaround time for tests conducted in week 49 was 1.5 days. Turnaround time increased in the public sector (2.4 days) and decreased in the private sector (0.8 days) (Figure 3). Turnaround times for public sector tests were >2 days in Eastern Cape (3.8 days) and Mpumalanga (3.3 days) (Figure 4). Turnaround times in the past week increased in the Eastern Cape, Free State, Mpumalanga and Gauteng. Thirteen of the 28 (46.4%) NHLS laboratories performing testing for SARS-CoV-2 had turnaround times ≤2 days (Figure 5).

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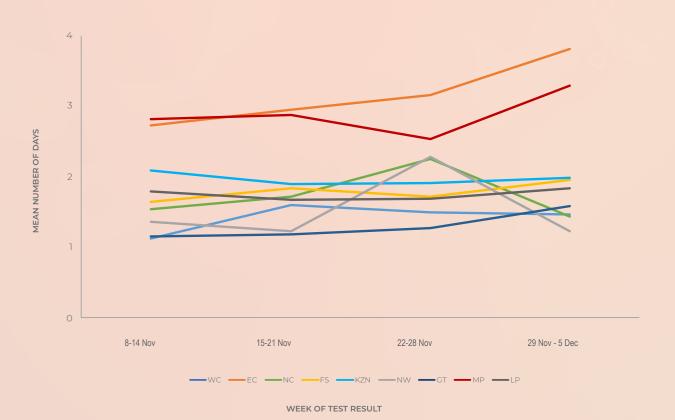
**Table 2.** Weekly number of tests conducted and positive tests, by healthcare sector, South Africa, 1 March – 5 December 2020

		Public sector		Privat	e sector	Public sector	r percentage of	Ratio
Week number	Week beginning	Tests	Cases n (%)	Tests	Positive tests n (%)	Tests (%)	Positive tests (%)	of PTP <sup>a</sup>
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	1345	51 (3.8)	19557	606 (3.1)	6.4	7.8	1.224
13	22-Mar	3358	127 (3.8)	13456	282 (2.1)	20.0	31.1	1.805
14	29-Mar	5632	174 (3.1)	11552	200 (1.7)	32.8	46.5	1.784
15	05-Apr	11335	331 (2.9)	13144	191 (1.5)	46.3	63.4	2.010
16	12-Apr	23758	612 (2.6)	17865	369 (2.1)	57.1	62.4	1.247
17	19-Apr	54140	1475 (2.7)	21457	376 (1.8)	71.6	79.7	1.555
18	26-Apr	66239	2291 (3.5)	22994	490 (2.1)	74.2	82.4	1.623
19	03-May	92292	4220 (4.6)	44071	1066 (2.4)	67.7	79.8	1.890
20	10-May	104950	5072 (4.8)	51665	2057 (4.0)	67.0	71.1	1.214
21	17-May	95404	6590 (6.9)	60413	3456 (5.7)	61.2	65.6	1.207
22	24-May	74225	5933 (8.0)	66886	5104 (7.6)	52.6	53.8	1.047
23	31-May	60213	6080 (10.1)	75207	6675 (8.9)	44.5	47.7	1.138
24	07-Jun	59926	7301 (12.2)	93231	11483 (12.3)	39.1	38.9	0.989
25	14-Jun	55929	11006 (19.7)	106655	16990 (15.9)	34.4	39.3	1.235
26	21-Jun	82472	18743 (22.7)	137038	29410 (21.5)	37.6	38.9	1.059
27	28-Jun	97308	25084 (25.8)	168109	41375 (24.6)	36.7	37.7	1.047
28	05-Jul	107953	30201 (28.0)	160951	46350 (28.8)	40.1	39.5	0.971
29	12-Jul	101290	29350 (29.0)	145364	45811 (31.5)	41.1	39.0	0.919
30	19-Jul	96201	28427 (29.5)	136714	41260 (30.2)	41.3	40.8	0.979
31	26-Jul	73894	21388 (28.9)	108480	29994 (27.6)	40.5	41.6	1.047
32	02-Aug	64136	15793 (24.6)	84478	19586 (23.2)	43.2	44.6	1.062
33	09-Aug	53686	10430 (19.4)	62168	11970 (19.3)	46.3	46.6	1.009
34	16-Aug	50907	8943 (17.6)	58449	9325 (16.0)	46.6	49.0	1.101
35	23-Aug	45499	7243 (15.9)	53655	6793 (12.7)	45.9	51.6	1.257
36	30-Aug	41070	5628 (13.7)	48604	5244 (10.8)	45.8	51.8	1.270
37	06-Sep	46391	5991 (12.9)	47048	4374 (9.3)	49.6	57.8	1.389
38	13-Sep	49091	6119 (12.5)	47852	4385 (9.2)	50.6	58.3	1.360
39	20-Sep	40920	5134 (12.5)	37735	3666 (9.7)	52.0	58.3	1.291
40	27-Sep	44227	5212 (11.8)	52811	4390 (8.3)	45.6	54.3	1.418
41	04-Oct	45566	5271 (11.6)	57403	5024 (8.8)	44.3	51.2	1.322
42	11-Oct	48216	5305 (11.0)	60090	5159 (8.6)	44.5	50.7	1.282
43	18-Oct	50200	5603 (11.2)	60549	4892 (8.1)	45.3	53.4	1.381
44	25-Oct	45604	5313 (11.7)	58788	4657 (7.9)	43.7	53.3	1.471
45	01-Nov	47092	5582 (11.9)	58891	4949 (8.4)	44.4	53.0	1.411
46	08-Nov	52597	7475 (14.2)	59590	5488 (9.2)	46.9	57.7	1.543
47	15-Nov	59423	9740 (16.4)	62369	6796 (10.9)	48.8	58.9	1.504
48	22-Nov	64661	11086 (17.1)	66770	8080 (12.1)	49.2	57.8	1.417
49	29-Nov	58707	11186 (19.1)	79939	11888 (14.9)	42.3	48.5	1.281
	Total	2176460	341527 (15.7)	2534079	410273 (16.2)	46.2	45.4	0.969

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



**Figure 3.** Mean number of days between date of specimen collection and date of test result, by week of test result, South Africa, 8 November - 5 December 2020



**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, 8 November – 5 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, 15 November – 5 December 2020. The horizontal black line indicates 48-hour turnaround time (TAT).

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### Testing by province

Gauteng (30.1%) performed the largest number of tests in week 49, followed by Western Cape (23.6%), KwaZulu-Natal (16.9%) and Eastern Cape (15.7%) provinces (Table 3). Western Cape (468 per 100,000 persons) and Eastern Cape (322 per 100,000 persons) provinces had the highest testing rates in week 49 (Figure 6). Testing rates increased in the Western Cape, KwaZulu-Natal and Gauteng in the past week, and decreased in the Eastern Cape.

The percentage testing positive in week 49 was highest in the Eastern Cape (33.4%), Western Cape (25.0%) and KwaZulu-Natal (14.8%). Percentages testing positive were <10% in Northern Cape, Free State, North West, Gauteng, Mpumalanga and Limpopo in week 49

(Figure 7). Compared to the previous week, the percentage testing positive in week 49 increased in six of the nine provinces: Western Cape (P<0.001), Eastern Cape (P<0.001), Free State (P<0.001), KwaZulu-Natal (P<0.001), Gauteng (P<0.001) and Limpopo (P=0.011). The percentage testing positive in week 49 compared to week 48 did not change in Northern Cape, North West and Mpumalanga. 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).

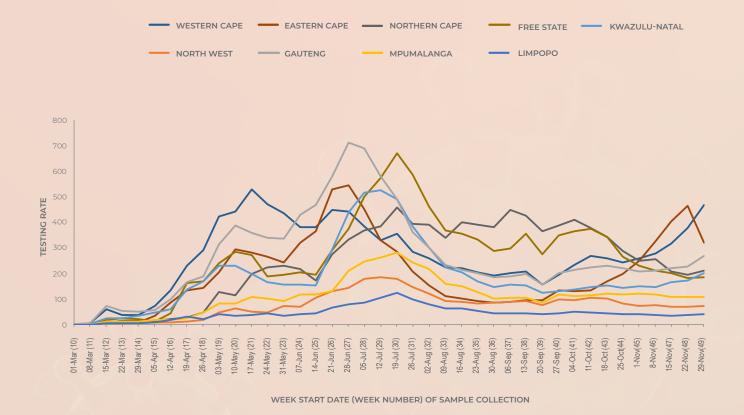


Figure 6. Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 1 March – 5 December 2020

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Table 3. Weekly number of tests performed and positive tests, by province, South Africa, 15 November - 5 December 2020

		15-	21 Nov	22-28 Nov		29 Nov – 5 Dec		~	
Province	Population <sup>a</sup>	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	Tests per 100,000 persons	Change in percentage positive <sup>b</sup>
Western Cape	7005741	22330	3708 (16.6)	26587	5488 (20.6)	32771	8189 (25.0)	468	4.3%
Eastern Cape	6734001	27332	9109 (33.3)	31289	9301 (29.7)	21702	7240 (33.4)	322	3.6%
Northern Cape	1292786	2707	201 (7.4)	2542	192 (7.6)	2734	210 (7.7)	211	0.1%
Free State	2928903	5931	295 (5.0)	5338	231 (4.3)	5426	349 (6.4)	185	2.1%
KwaZulu-Natal	11531628	19340	1164 (6.0)	20002	1625 (8.1)	23411	3457 (14.8)	203	6.6%
North West	4108816	2840	189 (6.7)	2960	165 (5.6)	3025	191 (6.3)	74	0.7%
Gauteng	15488137	34166	1400 (4.1)	35430	1701 (4.8)	41778	2885 (6.9)	270	2.1%
Mpumalanga	4679786	5061	335 (6.6)	5116	309 (6.0)	5176	328 (6.3)	111	0.3%
Limpopo	5852553	2079	134 (6.4)	2166	154 (7.1)	2352	216 (9.2)	40	2.1%
Unknown		6	1 (16.7)	1	0 (0.0)	271	9 (3.3)		3.3%
Total	59622350	121792	16536 (13.6)	131431	19166 (14.6)	138646	23074 (16.6)	233	2.1%

a 2020 Mid-year population Statistics SA

b Current week compared to previous week



**Figure 7.** Weekly percentage testing positive, by province, South Africa, 15 November – 5 December 2020. The horizontal blue line shows the national mean for week 49, beginning 29 November 2020.

### Testing in the public sector

In the public sector, the percentage testing positive increased in the past week (17.1% in week 48 to 19.1% in week 49, P<0.001) (Table 4). The percentage testing positive in week 49 was highest in the Western Cape

(31.0%) and Eastern Cape (30.3%). 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, 15 November – 5 December 2020

	15-2	Nov	22-2	8 Nov	29 Nov – 5 Dec		
Province	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	
Western Cape	9556	2080 (21.8)	11748	3107 (26.4)	14033	4351 (31.0)	
Eastern Cape	18881	5866 (31.1)	22566	6038 (26.8)	13512	4090 (30.3)	
Northern Cape	1751	132 (7.5)	1490	136 (9.1)	1667	160 (9.6)	
Free State	3202	168 (5.2)	2770	127 (4.6)	2573	165 (6.4)	
KwaZulu-Natal	10660	585 (5.5)	11003	753 (6.8)	11359	1334 (11.7)	
North West	1193	118 (9.9)	1052	94 (8.9)	937	102 (10.9)	
Gauteng	11242	529 (4.7)	11005	582 (5.3)	11816	761 (6.4)	
Mpumalanga	2163	199 (9.2)	2178	175 (8.0)	1910	148 (7.7)	
Limpopo	775	63 (8.1)	849	74 (8.7)	633	67 (10.6)	
Unknown	0	0 (0.0)	0	O (O.O)	267	8 (3.0)	
Total	59423	9740 (16.4)	64661	11086 (17.1)	58707	11186 (19.1)	



**Figure 8.** Weekly percentage testing positive in the public sector, by province, South Africa, 15 November – 5 December 2020. The horizontal blue line shows the national mean for week 49, beginning 29 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 29 November – 5 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 (12).

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Table 5. Public healthcare facilities with a high proportion testing positive, 29 November - 5 December 2020

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Eastern Cape	28	0.750 (0.590;0.910)
Facility 2	Eastern Cape	28	0.714 (0.547;0.882)
Facility 3	Eastern Cape	28	0.679 (0.506;0.852)
Facility 4	Eastern Cape	34	0.676 (0.519;0.834)
Facility 5	Western Cape	48	0.563 (0.422;0.703)
Facility 6	Eastern Cape	59	0.559 (0.433;0.686)
Facility 7	Eastern Cape	29	0.552 (0.371;0.733)
Facility 8	Eastern Cape	26	0.538 (0.347;0.730)
Facility 9	Western Cape	34	0.529 (0.362;0.697)
Facility 10	Western Cape	52	0.519 (0.383;0.655)
Facility 11	Western Cape	79	0.519 (0.409;0.629)
Facility 12	Eastern Cape	27	0.519 (0.330;0.707)
Facility 13	Western Cape	32	0.500 (0.327;0.673)
Facility 14	Western Cape	110	0.500 (0.407;0.593)
Facility 15	Eastern Cape	126	0.492 (0.405;0.579)
Facility 16	Western Cape	72	0.486 (0.371;0.602)
Facility 17	Eastern Cape	91	0.484 (0.381;0.586)
Facility 18	Western Cape	57	0.474 (0.344;0.603)
Facility 19	Western Cape	136	0.471 (0.387;0.554)
Facility 20	Eastern Cape	32	0.469 (0.296;0.642)
Facility 21	Western Cape	41	0.463 (0.311;0.616)
Facility 22	Western Cape	29	0.448 (0.267;0.629)
Facility 23	Eastern Cape	65	0.446 (0.325;0.567)
Facility 24	Western Cape	27	0.444 (0.257;0.632)
Facility 25	Western Cape	34	0.441 (0.274;0.608)

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

### Public sector testing: Health districtlevel results

The results for the 25 municipalities and metropolitan health sub-districts showing the greatest proportions testing positive in the week of 29 November – 5 December 2020 are shown in Table 6. Districts showing the greatest proportions testing positive are concentrated in the Eastern Cape (14 districts) and the Western Cape (10 districts).

Seven districts showed a proportion testing positive greater than 40%, and all 25 were greater than 30%. A significant increase over the week was observed in seven of the 25 districts – Kouga, Great Kei, Buffalo City, and Mnquma in the Eastern Cape, and Beaufort West, Cape Agulhas, and Overstrand in the Western Cape. A significant decrease in proportions testing positive was observed in George (Western Cape).

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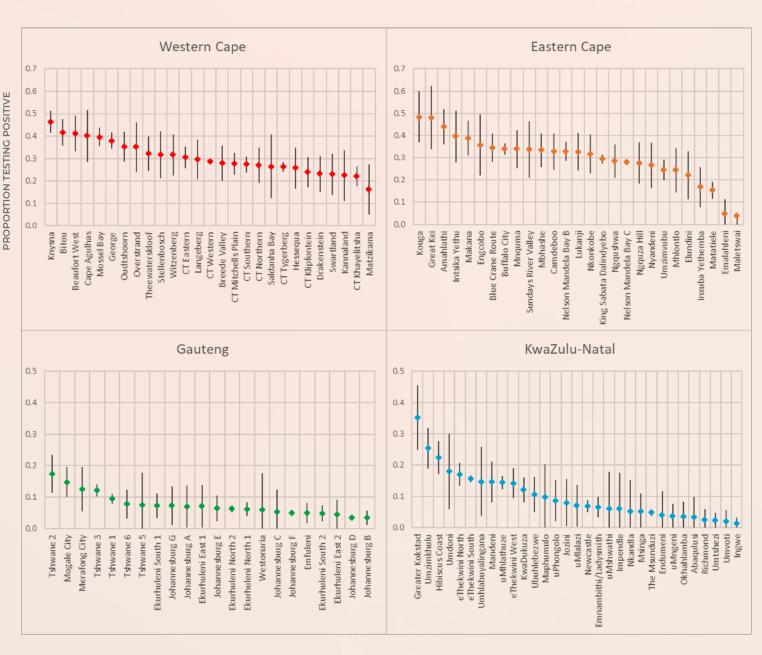
Table 6. Health sub-districts with the highest proportion testing positive based on public sector data for the week of 29

Health district or sub-district	Province	PTP (95% CI)	Previous week
Kouga	Eastern Cape	0.484 (0.368-0.599)	0.330 (0.297-0.363)
Great Kei	Eastern Cape	0.481 (0.339-0.623)	0.117 (0.008-0.227)
Knysna	Western Cape	0.464 (0.415-0.512)	0.519 (0.479-0.560)
Amahlathi	Eastern Cape	0.440 (0.360-0.519)	0.332 (0.288-0.376)
Bitou	Western Cape	0.417 (0.357-0.476)	0.484 (0.426-0.543)
Beaufort West	Western Cape	0.412 (0.332-0.492)	0.213 (0.113-0.314)
Cape Agulhas	Western Cape	0.401 (0.285-0.516)	0.081 (0.000-0.189)
Mossel Bay	Western Cape	0.396 (0.355-0.438)	0.338 (0.300-0.376)
Intsika Yethu	Eastern Cape	0.395 (0.279-0.512)	0.277 (0.184-0.370)
Makana	Eastern Cape	0.389 (0.311-0.466)	0.325 (0.293-0.358)
George	Western Cape	0.379 (0.343-0.416)	0.467 (0.436-0.498)
Engcobo	Eastern Cape	0.358 (0.220-0.495)	0.310 (0.177-0.443)
Oudtshoorn	Western Cape	0.353 (0.287-0.419)	0.286 (0.219-0.354)
Greater Kokstad	KwaZulu-Natal	0.352 (0.249-0.455)	0.173 (0.075-0.272)
Overstrand	Western Cape	0.351 (0.240-0.462)	0.023 (0.003-0.042)
Blue Crane Route	Eastern Cape	0.346 (0.282-0.410)	0.254 (0.212-0.296)
Buffalo City	Eastern Cape	0.340 (0.315-0.365)	0.271 (0.251-0.290)
Mnquma	Eastern Cape	0.339 (0.254-0.425)	0.212 (0.173-0.250)
Sundays River Valley	Eastern Cape	0.338 (0.211-0.465)	0.258 (0.203-0.314)
Mbhashe	Eastern Cape	0.334 (0.257-0.410)	0.318 (0.231-0.406)
Camdeboo	Eastern Cape	0.328 (0.247-0.410)	0.337 (0.310-0.364)
Nelson Mandela Bay B	Eastern Cape	0.328 (0.285-0.372)	0.352 (0.334-0.370)
Lukanji	Eastern Cape	0.327 (0.242-0.412)	0.198 (0.146-0.250)
Theewaterskloof	Western Cape	0.321 (0.245-0.398)	0.236 (0.152-0.319)
Stellenbosch	Western Cape	0.317 (0.213-0.422)	0.263 (0.177-0.349)

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 29 November – 5 December 2020.

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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 29 November – 5 December 2020.

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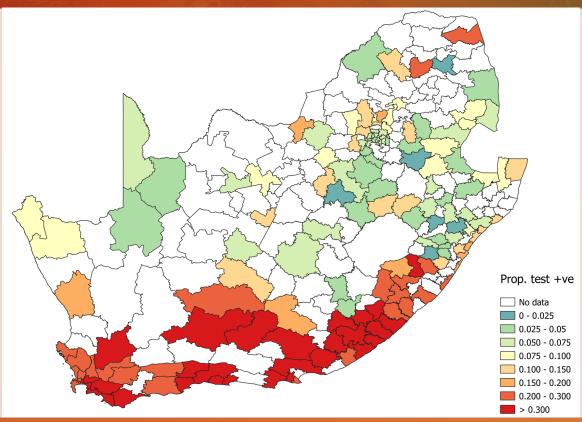
PROPORTION TESTING POSITIVE



**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 29 November – 5 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).



**Figure 10.** Proportion testing positive by health sub-district based on public sector data for the week of 29 November – 5 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%.

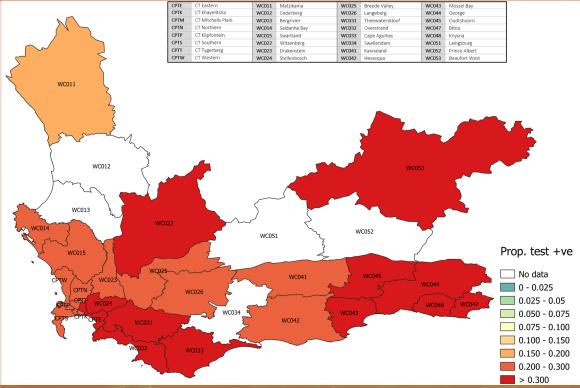


Figure 11. Health sub-districts in the Western Cape province with a high proportion testing positive based on public sector data for the week of 29 November – 5 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%

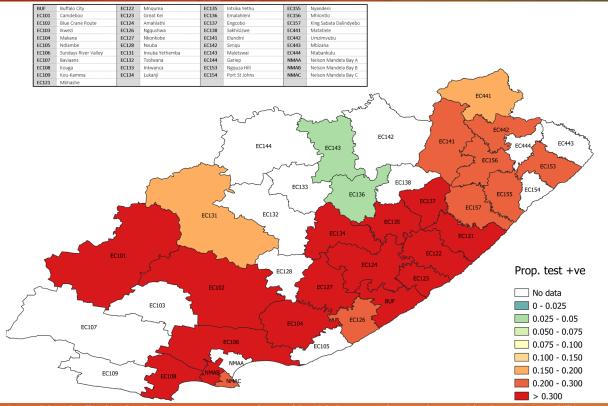
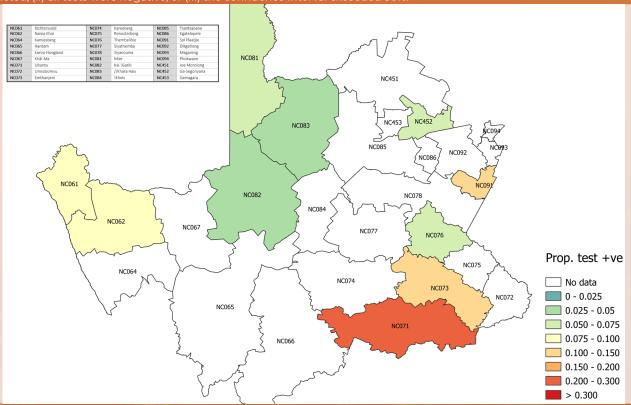


Figure 12. Health sub-districts in the Eastern Cape province with a high proportion testing positive based on public sector data for the week of 29 November – 5 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the 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 29 November – 5 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%.

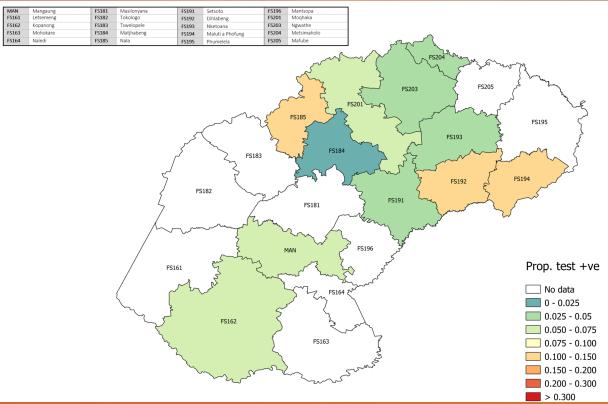


Figure 14. Health sub-districts in Free State Province with a high proportion testing positive based on public sector data for the week of 29 November – 5 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

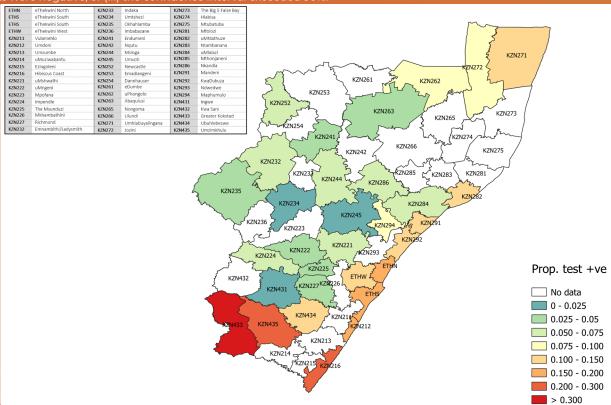


Figure 15. Health sub-districts in KwaZulu-Natal Province with a high proportion testing positive based on public sector data for the week of 29 November – 5 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

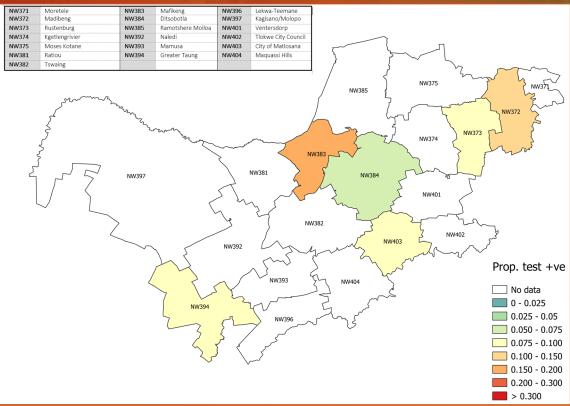


Figure 16. Health sub-districts in North West Province with a high proportion testing positive based on public sector data for the week of 29 November – 5 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

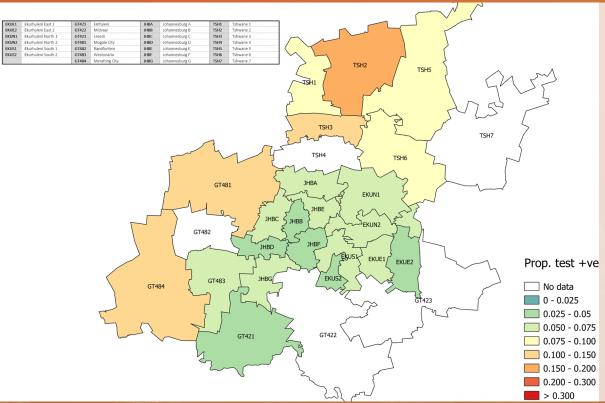
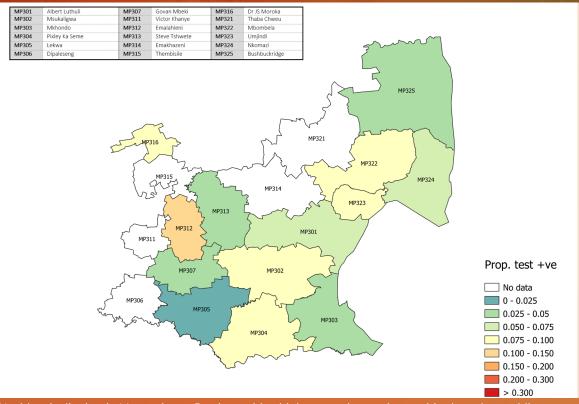
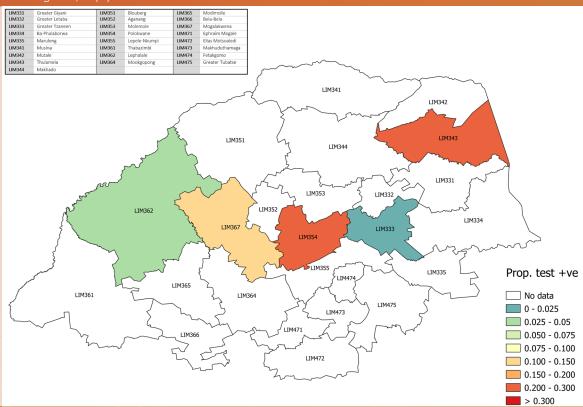


Figure 17. Health sub-districts in Gauteng Province with a high proportion testing positive based on public sector data for the week of 29 November – 5 December 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.



**Figure 18.** Health sub-districts in Mpumalanga Province with a high proportion testing positive based on public sector data for the week of 29 November – 5 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 29 November – 5 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 49, 59.1% of tests in the public sector were performed for hospitalised patients (Figure 20). The proportion of inpatient tests was highest in the Free State (72.6%), KwaZulu-Natal (71.1%) and North West (70.6%) provinces. Comparing week 49 to the previous week, the proportion of inpatient tests increased in seven provinces: Western Cape, Eastern Cape, Free

State, KwaZulu-Natal, North West, Gauteng and Mpumalanga. The percentage testing positive in week 49 remained lower among inpatients (15.5%) compared to outpatients (21.3%) (Figure 21). In the public sector in week 49 the mean laboratory turnaround time continued to be lower for inpatients (1.8 days) compared to outpatients (3.2 days), with an increased turnaround time observed among outpatients (Figure 22).

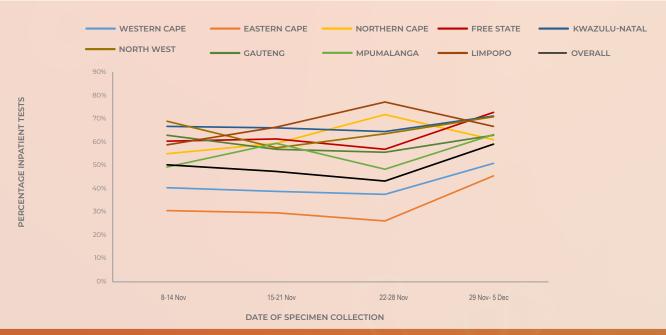


Figure 20. Percentage of inpatient tests performed in the public sector by province, 8 November – 5 December 2020



Figure 21. Percentage testing positive by patient admission status in the public sector, 8 November - 5 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, 8 November – 5 December 2020

#### Testing by age and sex

The mean age of individuals tested in week 49 was 38.7 years, similar to the previous weeks. The mean age of individuals with a positive test in week 49 was 41.3 years, also similar to previous weeks. The mean age of individuals with a positive test in week 49 was slightly higher in females (41.6 years) compared to males (41.0

years) (Table 7). The sex ratio (the number of males per 100 females) of individuals with a positive test in week 49 was 75.9. In both sexes the proportion testing positive in week 49 was higher than the previous two weeks in age groups ≥20 years(Figure 23).

**Table 7.** Mean age and sex ratio of individuals tested, South Africa, 8 November – 5 December 2020

		Mean age of	tested (years)	Mean age of positive tests (years)			s (males / 100 males)
Week number	Week beginning	Males	Females	Males	Females	Tested	Positive tests
46	8 November	38.8	39.3	41.4	41.5	87.4	73.7
47	15 November	38.8	39.4	41.2	41.3	88.2	71.6
48	22 November	38.5	39.3	41.5	41.7	87.2	73.2
49	29 November	38.3	39.1	41.0	41.6	87.9	75.9

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Figure 23. Weekly proportion testing positive by age group and sex, South Africa, 15 November - 5 December 2020

From week 46 to week 49, the percentage testing positive increased by 4.8% in males (from 10.6% to 15.4%) and increased by 5.3% in females (from 12.6% to 17.9%) (Table 8). In week 49 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 60-60 years (P=0.003) age groups, and did not differ in individuals aged  $\geq$ 70 years.

**Table 8.** Percentage testing positive by sex and week, South Africa, 8 November – 5 December 2020

Age (years)	8-14 Nov		15-2	15-21 Nov		22-28 Nov		29 Nov-5 Dec	
	Male	Female	Male	Female	Male	Female	Male	Female	
0-19	7.3%	8.4%	9.5%	11.6%	9.0%	11.4%	11.4%	12.9%	
20-39	10.5%	12.1%	11.5%	13.8%	13.0%	14.6%	14.9%	16.5%	
40-59	11.8%	15.2%	13.6%	18.1%	14.7%	19.5%	17.1%	21.5%	
60-69	11.7%	14.7%	14.5%	16.9%	16.5%	18.0%	18.1%	20.2%	
70+	11.2%	10.1%	11.5%	12.4%	14.2%	13.8%	17.0%	16.5%	
Total	10.6%	12.6%	12.1%	14.9%	13.3%	15.8%	15.4%	17.9%	

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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 29, and subsequently decreased. The number of tests performed in week 49 was higher than the weekly number of tests performed since week 32. Gauteng (30.1%) performed the largest number of tests in week 49, followed by Western Cape (23.6%), KwaZulu-Natal (16.9%) and Eastern Cape (15.7%) provinces. Western Cape (468 per 100,000 persons) and Eastern Cape (322 per 100,000 persons) provinces continued to have the highest testing rates in week 49. The overall laboratory turnaround time in week 49 was 1.5 days; 2.4 days in the public sector and <1 day 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 49 the percentage testing positive was 16.6%, higher than has been observed since week 34 (beginning 16 August). The percentage testing positive was highest in the Eastern Cape (33.4%), Western Cape (25.0%) and KwaZulu-Natal (14.8%). Percentages testing positive were <10% in Northern Cape, Free State, North West, Gauteng, Mpumalanga and Limpopo. In week 49, compared to the previous week, the percentage testing positive increased in the Western Cape, Eastern Cape, Free State, KwaZulu-Natal, Gauteng and Limpopo, and did not change in Northern Cape, North West and Mpumalanga. Of the 25 districts with the highest proportions testing positive in week 49, 14 were in the Eastern Cape and 10 in the Western Cape.