

COVID-19 TESTING SUMMARY



NATIONAL INSTITUTE FOR
COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 3 2021

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 23 January 2021 (Week 3 of 2021).

HIGHLIGHTS

- In the period 1 March 2020 through 23 January 2021, 7,953,741 laboratory tests for SARS-CoV-2 have been performed nationally.
- The number of tests performed in week 3 of 2021 (n=290,614) was lower than performed in the previous week.
- KwaZulu-Natal (662 per 100,000 persons), Gauteng (619 per 100,000 persons) and Western Cape (542 per 100,000 persons) provinces had the highest testing rates in week 3 of 2021.
- In week 3 of 2021 the percentage testing positive was 19.0%, lower than has been observed in the previous few weeks.
- Percentage testing positive in week 3 of 2021 was highest in Limpopo (32.5%) and Mpumalanga (25.1%) provinces. Percentage testing positive was 17%-20% in the Western Cape, Northern Cape, KwaZulu-Natal, North West, Free State and Gauteng, and was <15% in the Eastern Cape.
- In week 3 of 2021, compared to the previous week, the percentage testing positive decreased in all provinces.
- Mean laboratory turnaround time in week 3 of 2021 was 2.4 days; 3.9 days in the public sector and 1.0 day in the private sector.
- Integration of antigen test data from the different settings where these tests are being used into the national database is ongoing, leading to some underestimation of testing volumes.

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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) hospitalised 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 towards the end of October 2020. Results of reported rapid antigen-based tests are included in this report, however data are incomplete and efforts are ongoing to improve data completeness.

Test results were automatically fed into a data warehouse after result authorisation. We excluded specimens collected outside South Africa and duplicate entries of the same test for an individual. From week 48 of 2020 onwards, test data were reported from the Notifiable Medical Conditions Surveillance System (NMCCSS). 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 for public and private sector tests was determined based on the reported patient facility. Laboratory turnaround times were calculated for PCR-based

tests and 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 prevalences 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 of 2020), the week when the first case of COVID-19 was confirmed, and 23 January 2021 (week 3 of 2021).

Please note that from week 2 of 2021 the report presents data based on number of tests performed, and therefore numbers will differ from previous reports which described the number of people tested. Retrospective data has been updated. This change was made to account for >1 test being done on the same individual at different points of time and for different illness episodes.

Testing volumes and proportion testing positive

From 1 March 2020 through 23 January 2021, 7,953,741 laboratory tests (PCR and antigen tests) for SARS-CoV-2 were performed. The number of tests performed increased weekly from week 10 of 2020, with the highest number of tests performed during the first wave occurring in week 28 of 2020 (n=307,900), and subsequently decreased. Weekly testing volumes increased again from week 41 (beginning 4 October 2020), with the highest weekly number of tests performed since the start of the pandemic performed in week 1 of 2021 (n=482,275). In week 3 of 2021, 290,614 tests were performed, lower than the previous week. 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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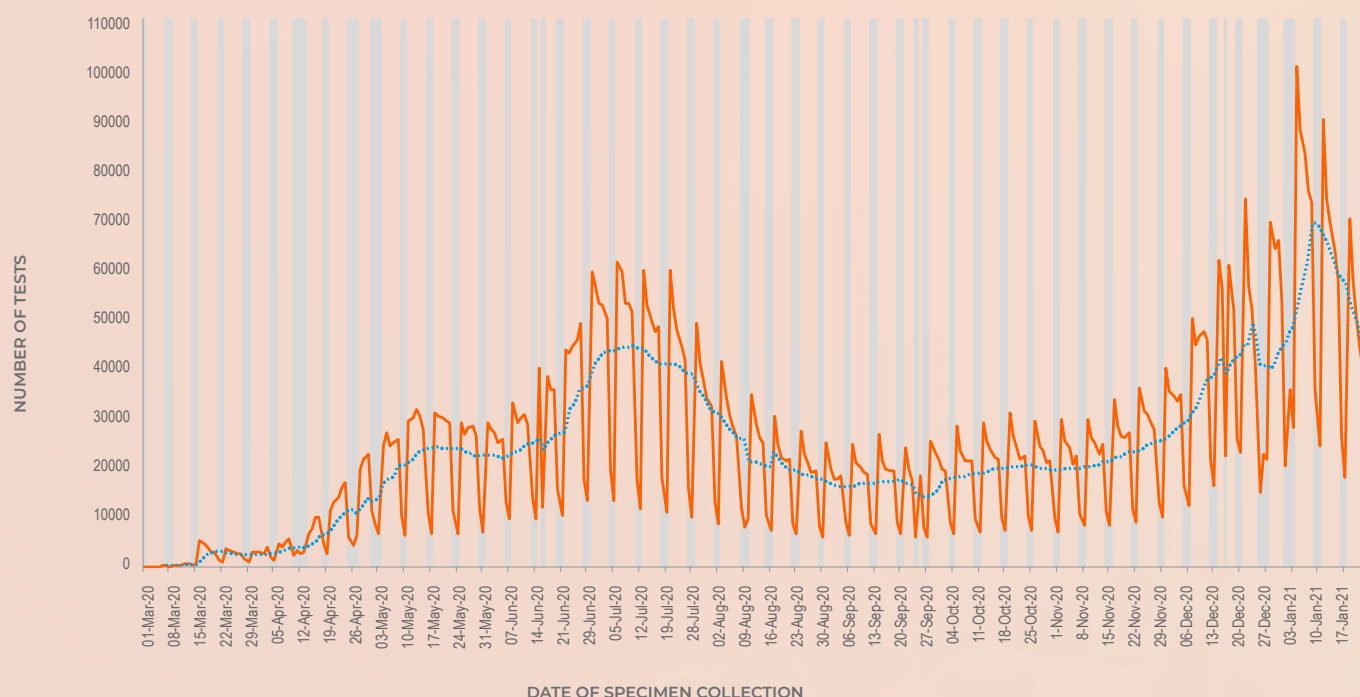


Figure 1. Number of laboratory tests conducted by date of specimen collection, South Africa, 1 March 2020 – 23 January 2021. Blue dotted line shows the 7-day moving average of the number of tests conducted. Grey bars highlight weekend days and public holidays.

The overall percentage testing positive from week 10 of 2020 through week 3 of 2021 was 18.7% (Table 1). During the first wave of infections, the percentage testing positive increased week on week from week 18 to a peak of 29.7% in week 29 of 2020, and subsequently decreased to 8.4% in week 44 of 2020. During the second wave of infections the percentage testing positive started increasing from week 46 of 2020, to a peak of 35.0% in week 53 of 2020. The percentage testing positive in week 3 of 2021 was 19.0%, lower than has been observed in the previous few weeks (Figure 2).

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Table 1. Weekly number of tests conducted and positive tests, South Africa, 1 March 2020 – 23 January 2021

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)
10	01-Mar-20	453 (0.0)	13	2.9
11	08-Mar-20	2380 (0.0)	103	4.3
12	15-Mar-20	21567 (0.3)	897	4.2
13	22-Mar-20	17540 (0.2)	543	3.1
14	29-Mar-20	18245 (0.2)	520	2.9
15	05-Apr-20	26298 (0.3)	796	3.0
16	12-Apr-20	43748 (0.6)	1295	3.0
17	19-Apr-20	79174 (1.0)	2177	2.7
18	26-Apr-20	93807 (1.2)	3203	3.4
19	03-May-20	142700 (1.8)	6017	4.2
20	10-May-20	165368 (2.1)	8090	4.9
21	17-May-20	166534 (2.1)	11379	6.8
22	24-May-20	156133 (2.0)	12967	8.3
23	31-May-20	153562 (1.9)	15079	9.8
24	07-Jun-20	173890 (2.2)	22358	12.9
25	14-Jun-20	186044 (2.3)	32638	17.5
26	21-Jun-20	252081 (3.2)	55044	21.8
27	28-Jun-20	302692 (3.8)	75306	24.9
28	05-Jul-20	307900 (3.9)	86032	27.9
29	12-Jul-20	285586 (3.6)	84924	29.7
30	19-Jul-20	270879 (3.4)	78632	29.0
31	26-Jul-20	216373 (2.7)	58391	27.0
32	02-Aug-20	179560 (2.3)	40991	22.8
33	09-Aug-20	141072 (1.8)	26262	18.6
34	16-Aug-20	135003 (1.7)	21374	15.8
35	23-Aug-20	123326 (1.6)	16330	13.2
36	30-Aug-20	112754 (1.4)	12790	11.3
37	06-Sep-20	116991 (1.5)	11952	10.2
38	13-Sep-20	120706 (1.5)	12011	10.0
39	20-Sep-20	98811 (1.2)	10098	10.2
40	27-Sep-20	123047 (1.5)	11006	8.9
41	04-Oct-20	131026 (1.6)	11777	9.0
42	11-Oct-20	137947 (1.7)	12072	8.8
43	18-Oct-20	142142 (1.8)	12065	8.5
44	25-Oct-20	135826 (1.7)	11477	8.4
45	01-Nov-20	138784 (1.7)	12132	8.7
46	08-Nov-20	146944 (1.8)	14837	10.1
47	15-Nov-20	160600 (2.0)	18758	11.7
48	22-Nov-20	175638 (2.2)	22042	12.5
49	29-Nov-20	202909 (2.6)	30761	15.2
50	06-Dec-20	266817 (3.4)	53282	20.0
51	13-Dec-20	292977 (3.7)	68501	23.4
52	20-Dec-20	282287 (3.5)	81744	29.0
53	27-Dec-20	328662 (4.1)	114964	35.0
1	03-Jan-21	482275 (6.1)	147878	30.7
2	10-Jan-21	404069 (5.1)	103052	25.5
3	17-Jan-21	290614 (3.7)	55134	19.0
Total		7953741 (100.0)	1489694	18.7

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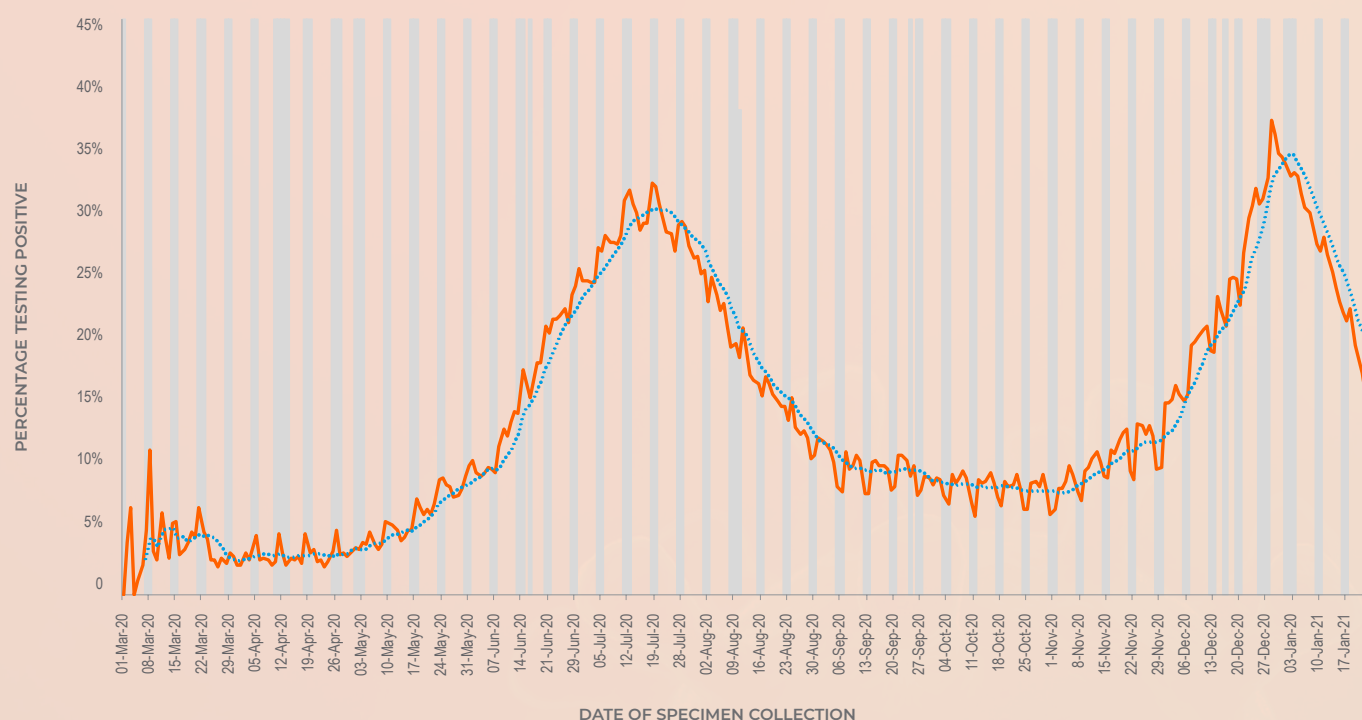


Figure 2. Percentage of laboratory tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March 2020 – 23 January 2021. Blue dotted line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

Testing in private and public sectors

From 1 March 2020 through 23 January 2021, 3,413,815 laboratory tests were conducted in public sector laboratories, with 19.4% testing positive. Over this same period, private sector laboratories conducted 4,539,926 tests, with 18.2% testing positive (Table 2). Overall the public sector has conducted 42.9% of tests and accounted for 44.5% of positive tests. In the first wave of infections the peak percentage testing positive was observed in week 30 of 2020 in the public sector (28.8%), and in week 29 of 2020 in the private sector (30.6%). In the second wave of infections the highest percentage testing positive was observed in week 53 of 2020 in both the public sector (35.7%) and private sector (34.4%). From week 2 to week 3 of 2021, the percentage testing positive

decreased by 6.9% in the public sector (26.8% to 19.9%, $P < 0.001$), and decreased by 6.1% (24.2% to 18.1%, $P < 0.001$) in the private sector. In week 3 of 2021 the percentage testing positive was higher in the public sector (19.9%) compared to the private sector (18.1%) ($P < 0.001$).

The mean turnaround time for PCR tests conducted in week 3 of 2021 was 2.4 days. Turnaround time increased in the public sector (3.9 days) and remained consistent in the private sector (1.0 days) (Figure 3). Turnaround times for public sector tests were >2 days in all provinces, except Western Cape, and were highest in the KwaZulu-Natal (6.5 days), North West (5.7 days), Mpumalanga (5.5 days) and Limpopo (5.4 days) (Figure 4). Nine of the 28 (36%) NHLS laboratories performing PCR 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 2020 – 23 January 2021

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-20	293	10 (3.4)	160	3 (1.9)	64.7	76.9	1.820
11	08-Mar-20	401	27 (6.7)	1979	76 (3.8)	16.8	26.2	1.753
12	15-Mar-20	1442	81 (5.6)	20125	816 (4.1)	6.7	9.0	1.385
13	22-Mar-20	3476	149 (4.3)	14064	394 (2.8)	19.8	27.4	1.530
14	29-Mar-20	5868	194 (3.3)	12377	326 (2.6)	32.2	37.3	1.255
15	05-Apr-20	11735	417 (3.6)	14563	379 (2.6)	44.6	52.4	1.365
16	12-Apr-20	24166	672 (2.8)	19582	623 (3.2)	55.2	51.9	0.874
17	19-Apr-20	55110	1595 (2.9)	24064	582 (2.4)	69.6	73.3	1.197
18	26-Apr-20	67468	2453 (3.6)	26339	750 (2.8)	71.9	76.6	1.277
19	03-May-20	94336	4506 (4.8)	48364	1511 (3.1)	66.1	74.9	1.529
20	10-May-20	107997	5443 (5.0)	57371	2647 (4.6)	65.3	67.3	1.092
21	17-May-20	98647	7031 (7.1)	67887	4348 (6.4)	59.2	61.8	1.113
22	24-May-20	77596	6411 (8.3)	78537	6556 (8.3)	49.7	49.4	0.990
23	31-May-20	63943	6626 (10.4)	89619	8453 (9.4)	41.6	43.9	1.099
24	07-Jun-20	64653	8038 (12.4)	109237	14320 (13.1)	37.2	36.0	0.948
25	14-Jun-20	61147	11982 (19.6)	124897	20656 (16.5)	32.9	36.7	1.185
26	21-Jun-20	90452	20425 (22.6)	161629	34619 (21.4)	35.9	37.1	1.054
27	28-Jun-20	106365	27244 (25.6)	196327	48062 (24.5)	35.1	36.2	1.046
28	05-Jul-20	117722	32238 (27.4)	190178	53794 (28.3)	38.2	37.5	0.968
29	12-Jul-20	110658	31383 (28.4)	174928	53541 (30.6)	38.7	37.0	0.927
30	19-Jul-20	105206	30319 (28.8)	165673	48313 (29.2)	38.8	38.6	0.988
31	26-Jul-20	81234	22782 (28.0)	135139	35609 (26.3)	37.5	39.0	1.064
32	02-Aug-20	70566	16996 (24.1)	108994	23995 (22.0)	39.3	41.5	1.094
33	09-Aug-20	58660	11172 (19.0)	82412	15090 (18.3)	41.6	42.5	1.040
34	16-Aug-20	56136	9621 (17.1)	78867	11753 (14.9)	41.6	45.0	1.150
35	23-Aug-20	50316	7790 (15.5)	73010	8540 (11.7)	40.8	47.7	1.324
36	30-Aug-20	45418	6096 (13.4)	67336	6694 (9.9)	40.3	47.7	1.350
37	06-Sep-20	51054	6421 (12.6)	65937	5531 (8.4)	43.6	53.7	1.499
38	13-Sep-20	53704	6547 (12.2)	67002	5464 (8.2)	44.5	54.5	1.495
39	20-Sep-20	44839	5530 (12.3)	53972	4568 (8.5)	45.4	54.8	1.457
40	27-Sep-20	48626	5567 (11.4)	74421	5439 (7.3)	39.5	50.6	1.566
41	04-Oct-20	50428	5688 (11.3)	80598	6089 (7.6)	38.5	48.3	1.493
42	11-Oct-20	53442	5702 (10.7)	84505	6370 (7.5)	38.7	47.2	1.415
43	18-Oct-20	56119	6043 (10.8)	86023	6022 (7.0)	39.5	50.1	1.538
44	25-Oct-20	51281	5721 (11.2)	84545	5756 (6.8)	37.8	49.8	1.639
45	01-Nov-20	53015	6067 (11.4)	85769	6065 (7.1)	38.2	50.0	1.618
46	08-Nov-20	58992	8110 (13.7)	87952	6727 (7.6)	40.1	54.7	1.797
47	15-Nov-20	67792	10701 (15.8)	92808	8057 (8.7)	42.2	57.0	1.818
48	22-Nov-20	74776	12243 (16.4)	100862	9799 (9.7)	42.6	55.5	1.685
49	29-Nov-20	81322	15833 (19.5)	121587	14928 (12.3)	40.1	51.5	1.586
50	06-Dec-20	107166	24734 (23.1)	159651	28548 (17.9)	40.2	46.4	1.291
51	13-Dec-20	116358	29861 (25.7)	176619	38640 (21.9)	39.7	43.6	1.173
52	20-Dec-20	108792	34163 (31.4)	173495	47581 (27.4)	38.5	41.8	1.145
53	27-Dec-20	147442	52656 (35.7)	181220	62308 (34.4)	44.9	45.8	1.039
1	03-Jan-21	221165	68790 (31.1)	261110	79088 (30.3)	45.9	46.5	1.027
2	10-Jan-21	197754	53048 (26.8)	206315	50004 (24.2)	48.9	51.5	1.107
3	17-Jan-21	138737	27615 (19.9)	151877	27519 (18.1)	47.7	50.1	1.099
Total		3413815	662741 (19.4)	4539926	826953 (18.2)	42.9	44.5	1.066

^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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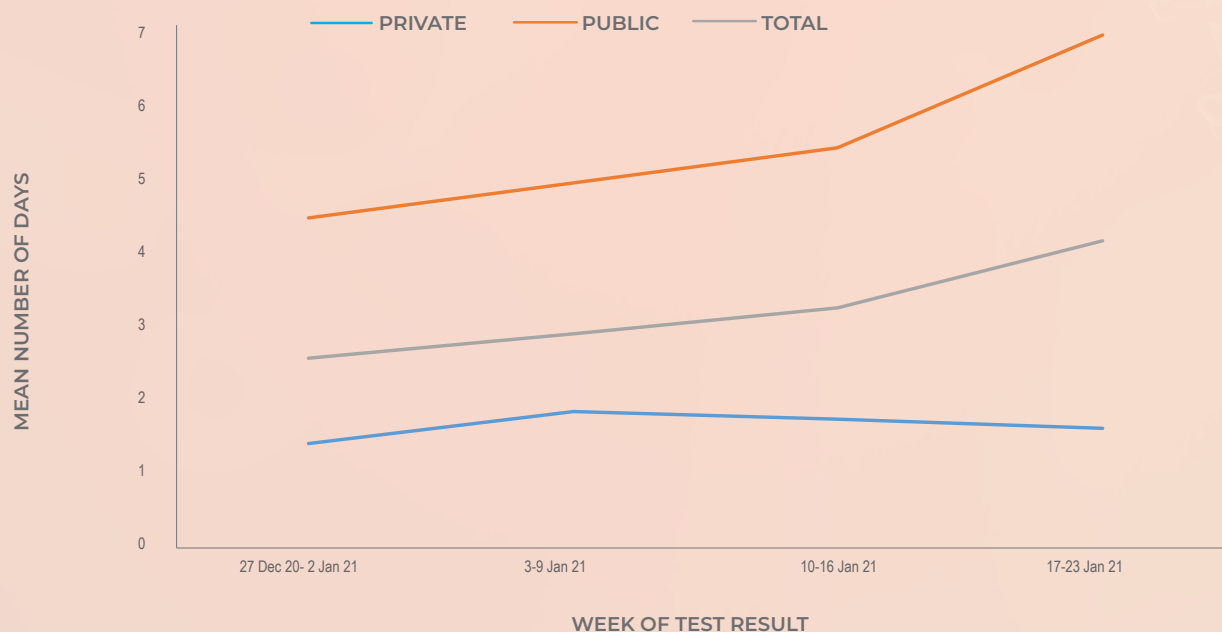


Figure 3. Mean number of days between date of specimen collection and date of test result, by week of test result, South Africa, 27 December 2020 – 23 January 2021

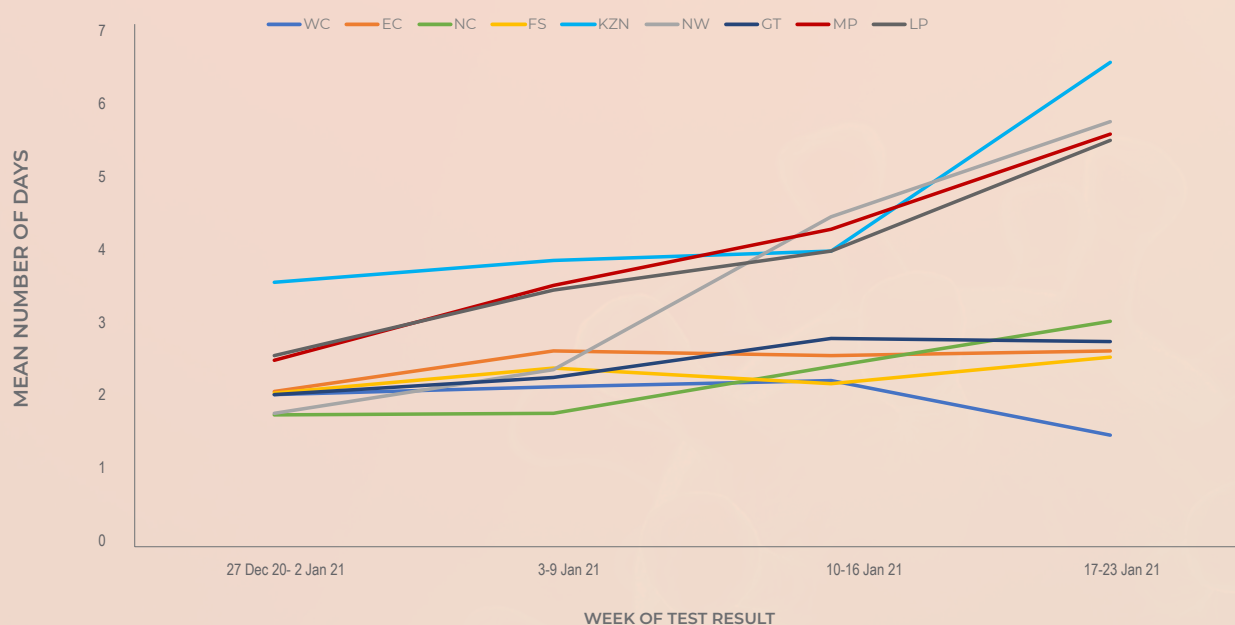


Figure 4. Mean number of days between date of specimen collection and date of test result, by week of test result and province, public sector, South Africa, 27 December 2020 – 23 January 2021. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal; GT, Gauteng; NC, Northern Cape; NW, North West; MP, Mpumalanga; LP, Limpopo

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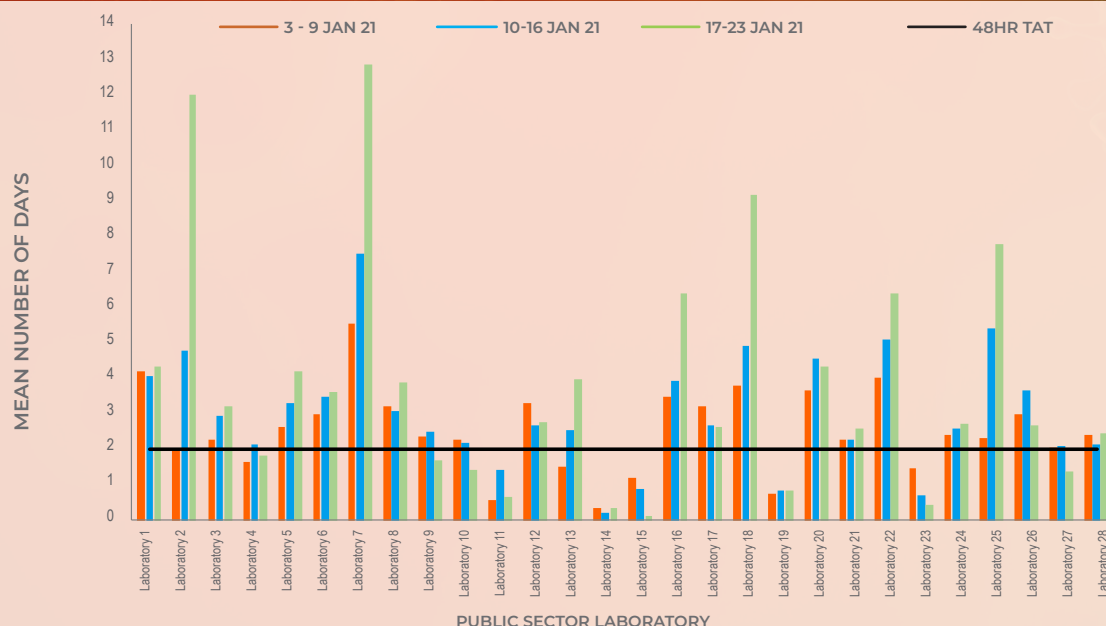


Figure 5. Mean number of days between date of specimen collection and date of test result, by public sector laboratory, 3 – 23 January 2021. The horizontal black line indicates 48-hour turnaround time (TAT).

Testing by province

Gauteng (33.0%) performed the largest number of tests in week 3 of 2021, followed by KwaZulu-Natal (26.3%) and Western Cape (13.1%) provinces (Table 3). KwaZulu-Natal (662 per 100,000 persons), Gauteng (619 per 100,000 persons) and Western Cape (542 per 100,000 persons) provinces had the highest testing rates in week 3 of 2021 (Figure 6). Testing rates decreased in all provinces over the past week.

The percentage testing positive in week 3 of 2021 was highest in Limpopo (32.5%) and Mpumalanga (25.1%). Percentage testing positive was 17-20% in the Western Cape, Northern Cape, KwaZulu-Natal, North West, Free State and Gauteng, and was <15% in the Eastern Cape in week 3 of 2021 (Figure 7 and Table 3). Compared to the previous week, the percentage testing positive decreased in week 3 in all provinces ($P \leq 0.001$). The percentage testing positive was higher than the national average, not weighted for population size, in the Western Cape, KwaZulu-Natal, North West, Mpumalanga and Limpopo (Figure 7).

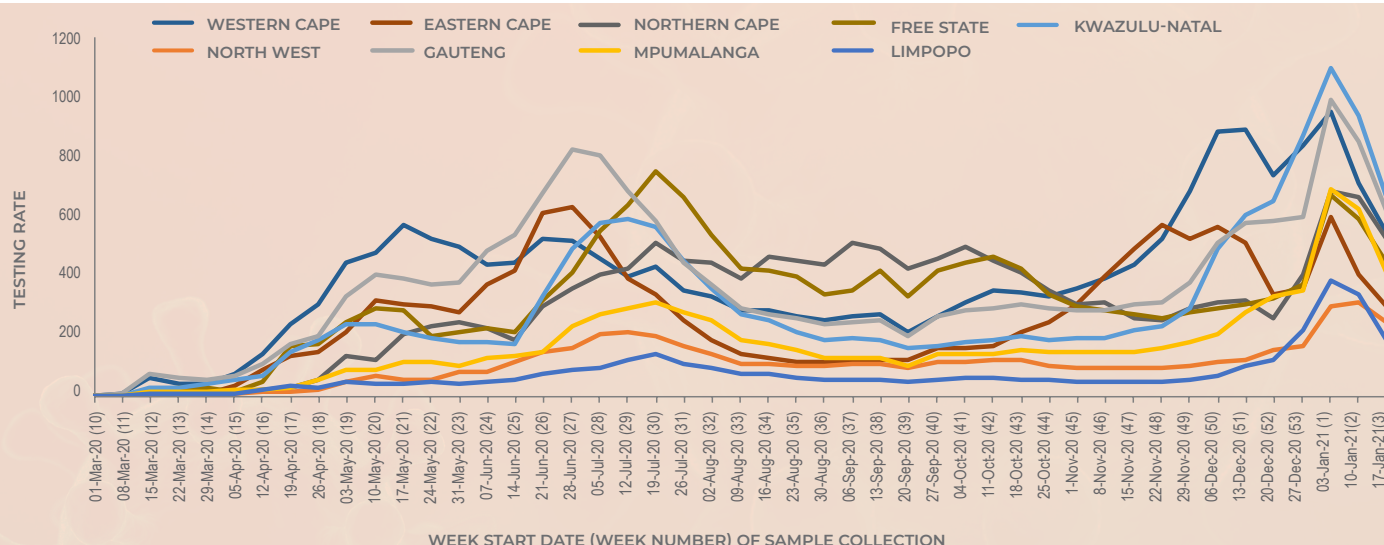


Figure 6. Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 1 March 2020 – 23 January 2021

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Table 3. Weekly number of tests performed and positive tests, by province, South Africa, 3 – 23 January 2021

Province	Population ^a	3 – 9 Jan 21		10 – 16 Jan 21		17 – 23 Jan 21		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	66569	23133 (34.8)	49660	14135 (28.5)	37967	7311 (19.3)	542	-9.2%
Eastern Cape	6734001	40077	7826 (19.5)	27372	5191 (19.0)	20162	2545 (12.6)	299	-6.3%
Northern Cape	1292786	8806	2447 (27.8)	8563	2086 (24.4)	6824	1267 (18.6)	528	-5.8%
Free State	2928903	19700	4430 (22.5)	17257	3897 (22.6)	12996	2462 (18.9)	444	-3.6%
KwaZulu-Natal	11531628	126615	41620 (32.9)	107585	27329 (25.4)	76353	14842 (19.4)	662	-6.0%
North West	4108816	12231	4562 (37.3)	12879	3664 (28.4)	10148	2032 (20.0)	247	-8.4%
Gauteng	15488137	153317	42635 (27.8)	131803	29073 (22.1)	95869	16269 (17.0)	619	-5.1%
Mpumalanga	4679786	32277	10411 (32.3)	29245	9590 (32.8)	19388	4868 (25.1)	414	-7.7%
Limpopo	5852553	22652	10805 (47.7)	19681	8082 (41.1)	10888	3536 (32.5)	186	-8.6%
Unknown		31	9 (29.0)	24	5 (20.8)	19	2 (10.5)		
Total	59622350	482275	147878 (30.7)	404069	103052 (25.5)	290614	55134 (19.0)	487	-6.5%

^a 2020 Mid-year population Statistics SA

^b Current week compared to previous week

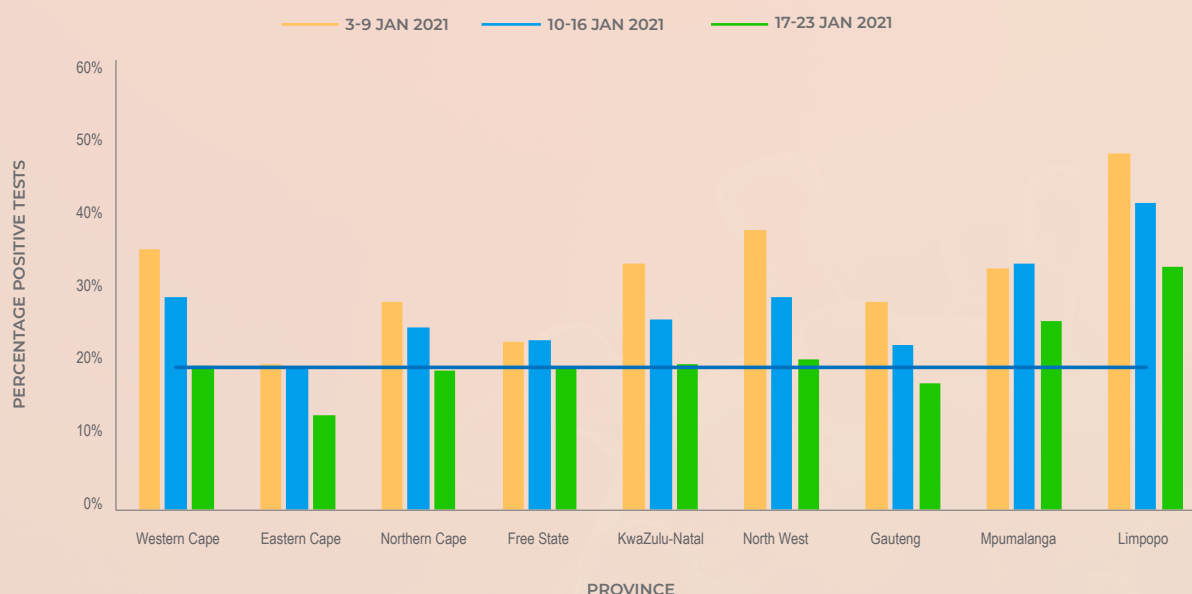


Figure 7. Weekly percentage testing positive, by province, South Africa, 3 – 23 January 2021. The horizontal blue line shows the national mean for week 3, beginning 17 January 2021.

Testing in the public sector

In the public sector, the percentage testing positive decreased in the past week (26.8% in week 2 to 19.9% in week 3 of 2021, $P < 0.001$) (Table 4). The percentage testing positive in week 3 of 2021 was

highest in Limpopo (36.4%), Mpumalanga (26.6%) and Western Cape (22.3%). The percentage testing positive in the public sector remains higher than the national average, not weighted for population size, in the Western Cape, Northern Cape, Free State, Mpumalanga and Limpopo provinces (Figure 8).

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Table 4. Weekly number of tests conducted and positive tests in the public sector, by province, South Africa, 3 – 23 January 2021

Province	3 - 9 Jan 2021		10-16 Jan 2021		17-23 Jan 2021	
	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	27881	10563 (37.9)	22159	6904 (31.2)	15858	3538 (22.3)
Eastern Cape	30886	5236 (17.0)	19967	3686 (18.5)	14728	1827 (12.4)
Northern Cape	5510	1545 (28.0)	5603	1396 (24.9)	4252	862 (20.3)
Free State	12927	2917 (22.6)	10972	2656 (24.2)	7249	1547 (21.3)
KwaZulu-Natal	68067	22501 (33.1)	65618	16567 (25.2)	47709	9443 (19.8)
North West	6102	2423 (39.7)	6467	1878 (29.0)	5051	994 (19.7)
Gauteng	50044	14427 (28.8)	46593	11291 (24.2)	33989	6456 (19.0)
Mpumalanga	10715	4617 (43.1)	12237	4902 (40.1)	6688	1778 (26.6)
Limpopo	9033	4561 (50.5)	8136	3768 (46.3)	3213	1170 (36.4)
Unknown	0	0 (0.0)	2	0 (0.0)	0	0 (0)
Total	221165	68790 (31.1)	197754	53048 (26.8)	138737	27615 (19.9)

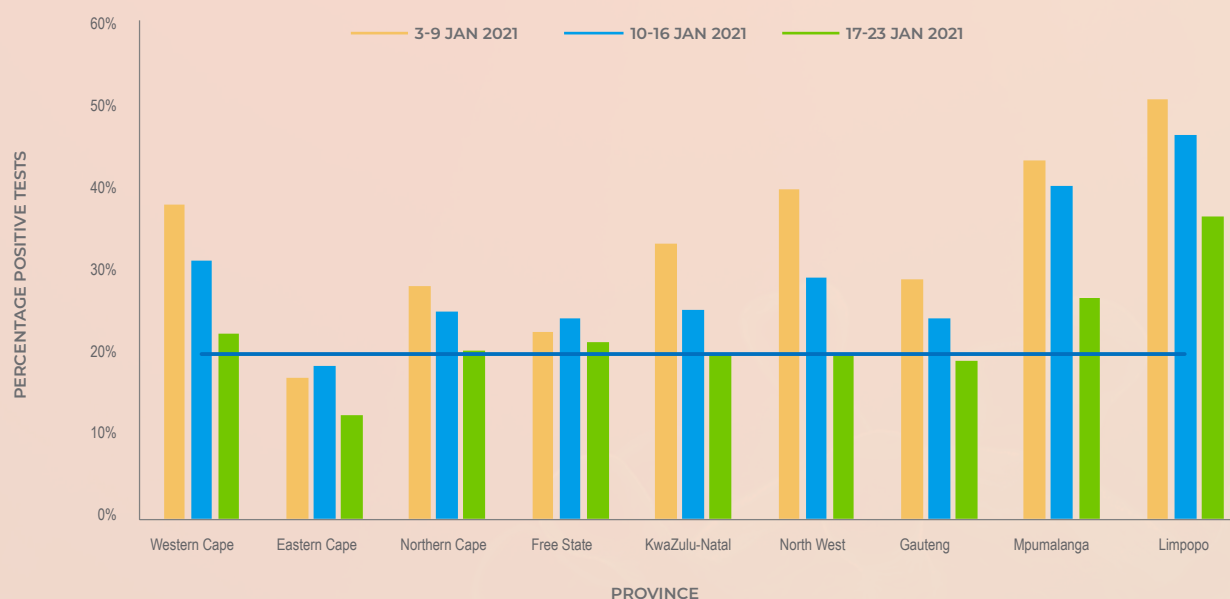


Figure 8. Weekly percentage testing positive in the public sector, by province, South Africa, 3 – 23 January 2021. The horizontal blue line shows the national mean for week 3 of 2021, beginning 17 January 2021.

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 17-23 January 2021, with the highest proportion testing positive nationally. This week's list is dominated by facilities in KwaZulu-Natal (12) and Limpopo (6).

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Table 5.1 Public sector healthcare facilities with a high proportion testing positive, 17-23 January 2021

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	KwaZulu-Natal	29	0.690 (0.521;0.858)
Facility 2	Eastern Cape	74	0.649 (0.540;0.757)
Facility 3	KwaZulu-Natal	34	0.647 (0.486;0.808)
Facility 4	KwaZulu-Natal	33	0.636 (0.472;0.800)
Facility 5	Limpopo	51	0.608 (0.474;0.742)
Facility 6	KwaZulu-Natal	33	0.606 (0.439;0.773)
Facility 7	KwaZulu-Natal	113	0.593 (0.502;0.684)
Facility 8	KwaZulu-Natal	82	0.573 (0.466;0.680)
Facility 9	Western Cape	37	0.568 (0.408;0.727)
Facility 10	KwaZulu-Natal	141	0.567 (0.486;0.649)
Facility 11	KwaZulu-Natal	32	0.563 (0.391;0.734)
Facility 12	KwaZulu-Natal	48	0.563 (0.422;0.703)
Facility 13	Limpopo	87	0.540 (0.436;0.645)
Facility 14	KwaZulu-Natal	99	0.535 (0.437;0.634)
Facility 15	KwaZulu-Natal	43	0.535 (0.386;0.684)
Facility 16	Limpopo	32	0.531 (0.358;0.704)
Facility 17	Limpopo	194	0.531 (0.461;0.601)
Facility 18	Free State	104	0.529 (0.433;0.625)
Facility 19	North West	71	0.521 (0.405;0.637)
Facility 20	Mpumalanga	29	0.517 (0.335;0.699)
Facility 21	Limpopo	29	0.517 (0.335;0.699)
Facility 22	Mpumalanga	60	0.517 (0.390;0.643)
Facility 23	KwaZulu-Natal	31	0.516 (0.340;0.692)
Facility 24	Free State	33	0.515 (0.345;0.686)
Facility 25	Limpopo	99	0.515 (0.417;0.614)

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 17-23 January 2021, with the highest proportion testing positive nationally. Private-sector facilities with high proportions testing positive are concentrated in KwaZulu-Natal (9) and Limpopo (6), with five in Gauteng and three in Mpumalanga.

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Table 5.2 Private sector healthcare facilities with a high proportion testing positive, 17-23 January 2021

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	Limpopo	134	0.470 (0.386;0.555)
Facility 2	Gauteng	28	0.464 (0.280;0.649)
Facility 3	KwaZulu-Natal	48	0.458 (0.317;0.599)
Facility 4	Mpumalanga	30	0.433 (0.256;0.611)
Facility 5	Gauteng	132	0.417 (0.333;0.501)
Facility 6	Limpopo	413	0.409 (0.362;0.457)
Facility 7	Limpopo	352	0.406 (0.355;0.458)
Facility 8	Western Cape	42	0.405 (0.256;0.553)
Facility 9	KwaZulu-Natal	67	0.403 (0.286;0.520)
Facility 10	Limpopo	160	0.400 (0.324;0.476)
Facility 11	North West	25	0.400 (0.208;0.592)
Facility 12	KwaZulu-Natal	28	0.393 (0.212;0.574)
Facility 13	Gauteng	34	0.382 (0.219;0.546)
Facility 14	Limpopo	592	0.380 (0.341;0.419)
Facility 15	KwaZulu-Natal	113	0.372 (0.283;0.461)
Facility 16	Limpopo	194	0.371 (0.303;0.439)
Facility 17	KwaZulu-Natal	189	0.365 (0.296;0.434)
Facility 18	KwaZulu-Natal	77	0.364 (0.256;0.471)
Facility 19	Mpumalanga	77	0.364 (0.256;0.471)
Facility 20	KwaZulu-Natal	119	0.361 (0.275;0.448)
Facility 21	KwaZulu-Natal	36	0.361 (0.204;0.518)
Facility 22	Gauteng	39	0.359 (0.208;0.510)
Facility 23	KwaZulu-Natal	45	0.356 (0.216;0.495)
Facility 24	Gauteng	51	0.353 (0.222;0.484)
Facility 25	Mpumalanga	105	0.352 (0.261;0.444)

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

Health district-level results

The data from geolocatable public testing (almost every public sector facility in the country) and private testing (approximately 83% of private testing facilities) in the week from 17-23 January 2021 have been located within the spatial framework of the health districts and health sub-districts (in the metros).

The results, for the 25 municipalities and metropolitan health sub-districts showing the greatest proportions testing positive (PTP) are shown in Table 6. Districts showing the greatest proportions testing positive are concentrated in KwaZulu-Natal (11 districts), Mpumalanga and Limpopo (5 districts each).

Four districts with the highest proportion testing positive in the week from 17-23 January 2021 showed a proportion testing positive greater than 50% (but less than 60%). A significant increase was observed in 2 districts (Ezingoleni and Mtubatuba in KwaZulu-Natal), while the proportion of tests returned positive fell significantly in 4 districts (2 in Limpopo, and one each in Mpumalanga and KwaZulu-Natal).

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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 17-23 January 2021

Health district or sub-district	Province	PTP (95% CI)	Previous week
Ezingoleni	KwaZulu-Natal	0.551 (0.471-0.630)	0.354 (0.277-0.432)
Umzumbe	KwaZulu-Natal	0.520 (0.463-0.576)	0.419 (0.371-0.466)
Dannhauser	KwaZulu-Natal	0.510 (0.409-0.612)	0.417 (0.347-0.487)
Mtubatuba	KwaZulu-Natal	0.501 (0.449-0.553)	0.306 (0.269-0.342)
The Big 5 False Bay	KwaZulu-Natal	0.497 (0.348-0.646)	0.332 (0.219-0.446)
Makhuduthamaga	Limpopo	0.493 (0.411-0.575)	0.559 (0.508-0.610)
Vulamehlo	KwaZulu-Natal	0.493 (0.366-0.619)	0.415 (0.315-0.514)
Emadlangeni	KwaZulu-Natal	0.461 (0.359-0.564)	0.519 (0.430-0.608)
Cederberg	Western Cape	0.435 (0.346-0.524)	0.393 (0.308-0.479)
Bushbuckridge	Mpumalanga	0.425 (0.376-0.473)	0.508 (0.483-0.532)
Pixley Ka Seme	Mpumalanga	0.424 (0.344-0.503)	0.475 (0.439-0.511)
Mfolozi	KwaZulu-Natal	0.413 (0.286-0.540)	0.381 (0.321-0.440)
Moretele	NorthWest	0.407 (0.329-0.486)	0.517 (0.448-0.585)
Umzimkhulu	KwaZulu-Natal	0.402 (0.352-0.452)	0.360 (0.317-0.402)
Umjindi	Mpumalanga	0.400 (0.299-0.501)	0.379 (0.299-0.458)
Mamusa	NorthWest	0.396 (0.281-0.510)	0.340 (0.224-0.457)
Ndwedwe	KwaZulu-Natal	0.392 (0.348-0.436)	0.393 (0.360-0.426)
Mandeni	KwaZulu-Natal	0.391 (0.350-0.432)	0.470 (0.434-0.505)
Greater Tzaneen	Limpopo	0.386 (0.359-0.414)	0.450 (0.427-0.473)
Emakhazeni	Mpumalanga	0.383 (0.270-0.496)	0.320 (0.252-0.387)
Bela-Bela	Limpopo	0.382 (0.278-0.487)	0.485 (0.400-0.570)
Makhado	Limpopo	0.382 (0.346-0.419)	0.466 (0.440-0.492)
Mkhondo	Mpumalanga	0.374 (0.316-0.431)	0.395 (0.352-0.438)
Greater Letaba	Limpopo	0.364 (0.219-0.509)	0.510 (0.423-0.597)
Mafube	Free State	0.359 (0.267-0.452)	0.285 (0.207-0.363)

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 17-23 January 2021.

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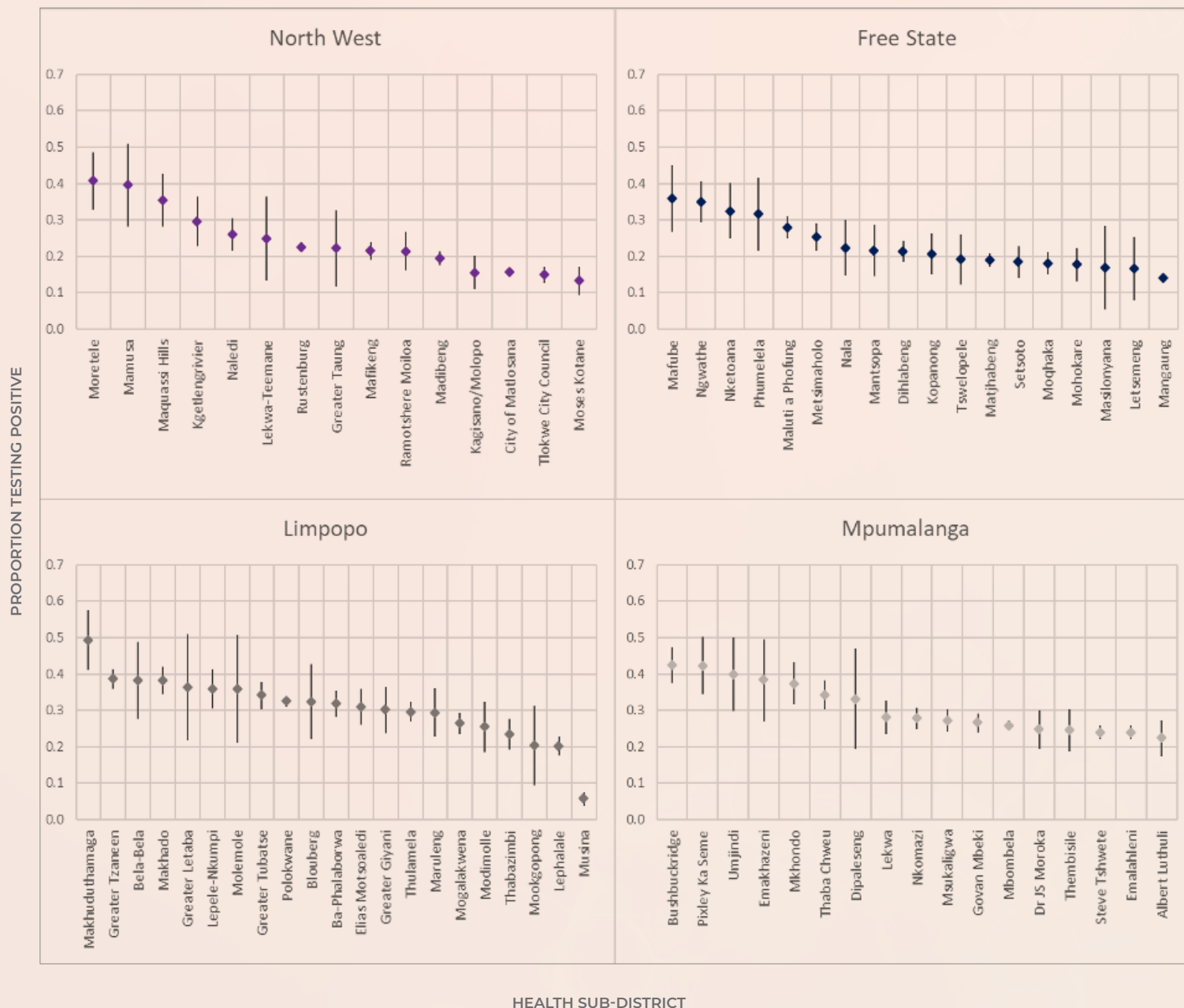


Figure 9.2 Proportions testing positive by health sub-district in the North West, Free State, Limpopo and Mpumalanga provinces based on public and private sector data for the week of 17-23 January 2021.

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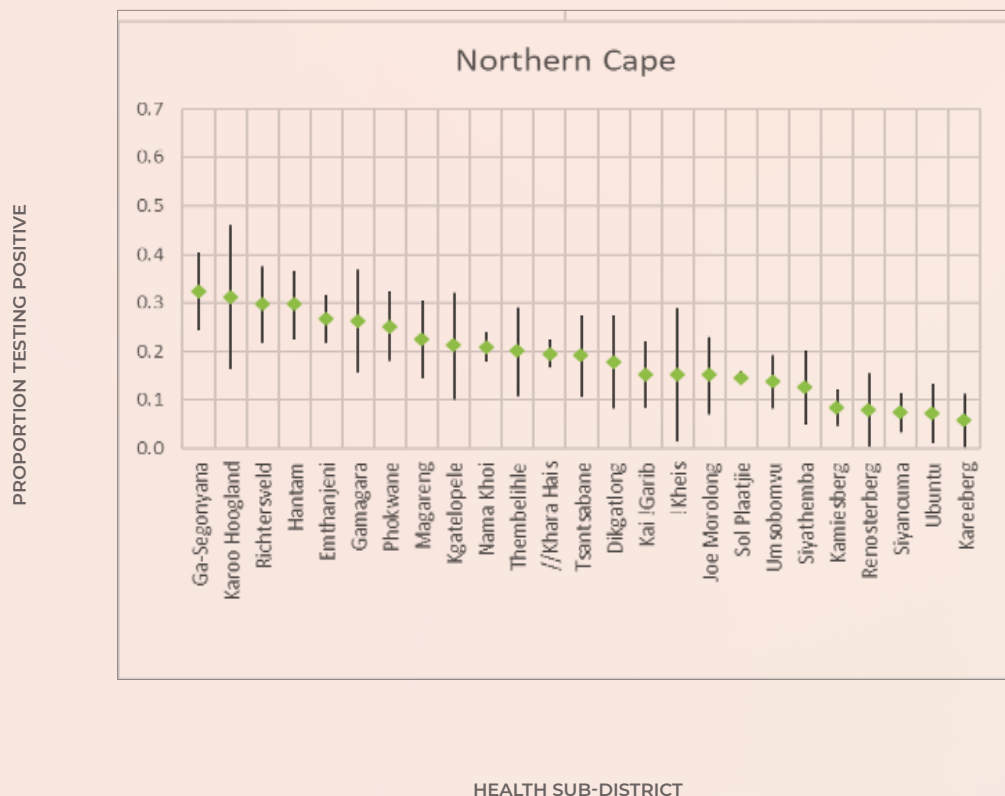


Figure 9.3 Proportions testing positive by health sub-districts in the Northern Cape Province based on public and private sector data for the week of 17-23 January 2021.

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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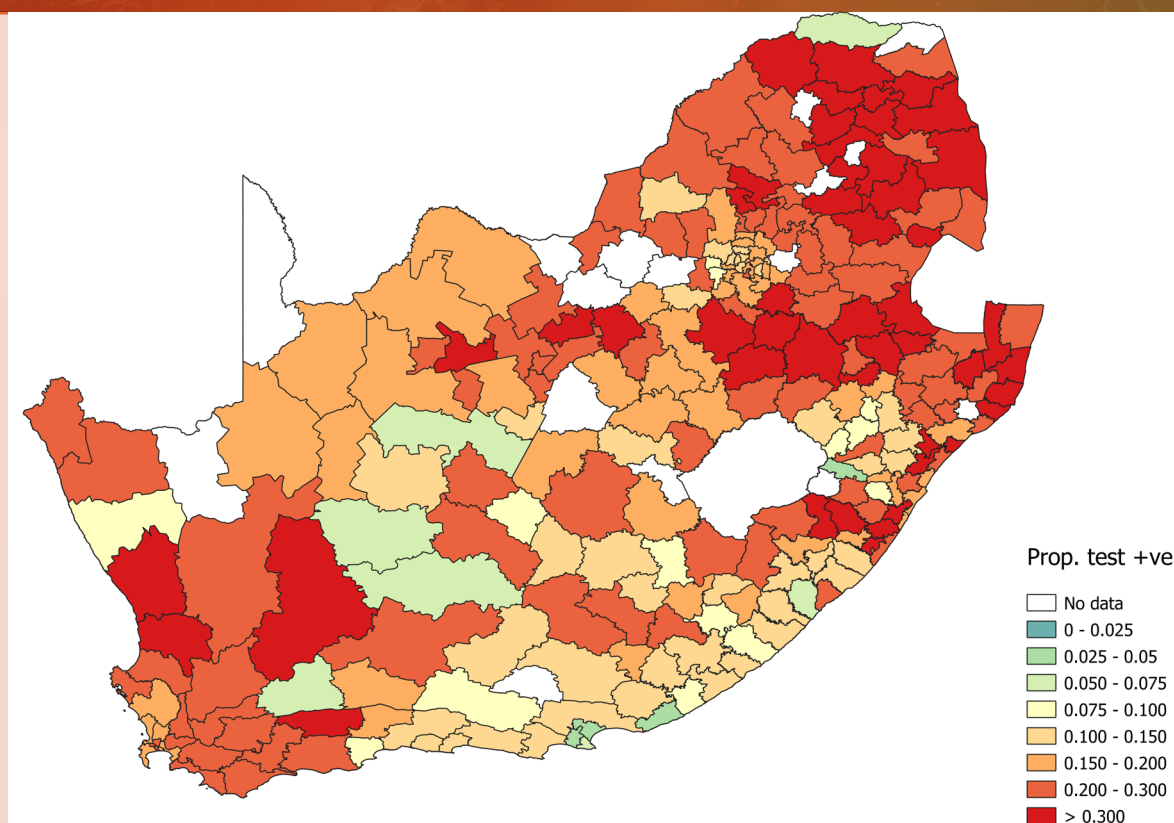


Figure 10. Proportion testing positive by health sub-district in South Africa for the week of 17-23 January 2021. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

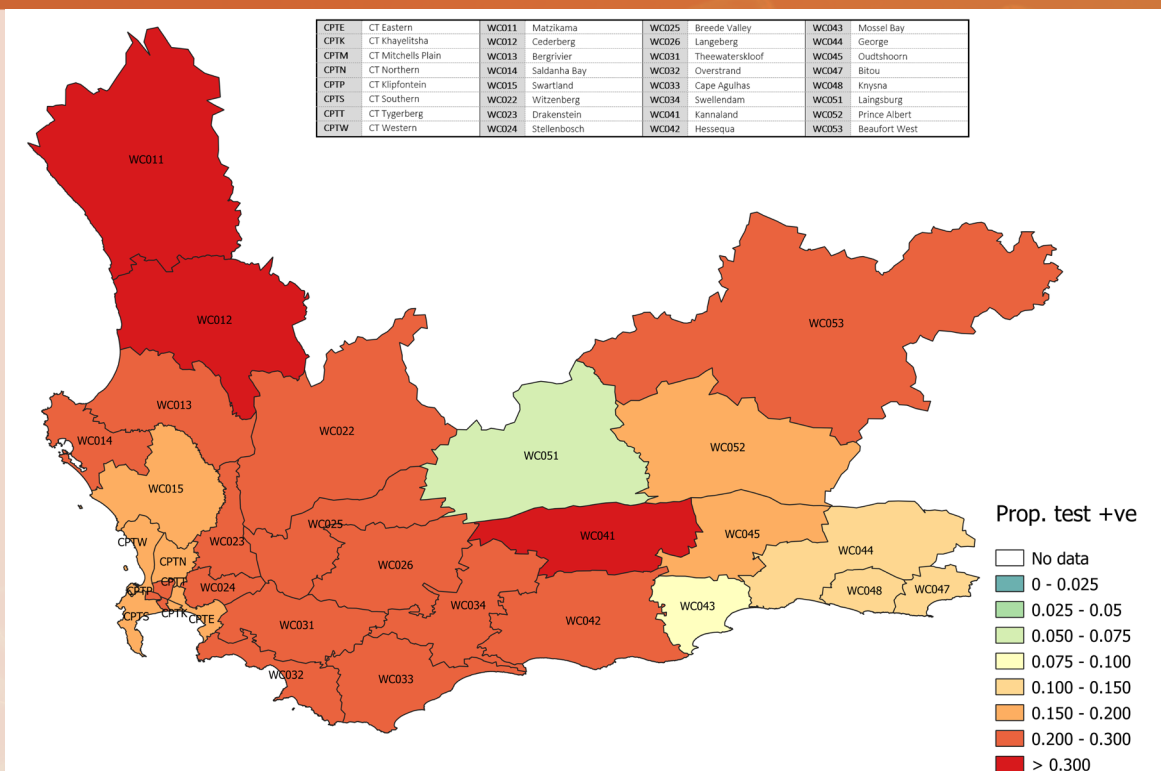


Figure 11. Proportion testing positive by health sub-district in the Western Cape province for the week of 17-23 January 2021. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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BUF	Buffalo City	EC122	Mquma	EC135	Intsika Yethu	EC155	Ryanderi
EC101	Camdeboo	EC123	Great Kei	EC136	Emalahleni	EC156	Mthombo
EC102	Blue Crane Route	EC124	Amajathi	EC137	Engobo	EC157	King Sabata Dalindyebo
EC103	Reweti	EC126	Nqushwa	EC138	Sakhisizwe	EC141	Matatiele
EC104	Makana	EC127	Nkonkobe	EC141	Elundini	EC142	Umtombu
EC105	Nolambe	EC128	Nxuba	EC142	Sonju	EC143	Mbizana
EC106	Sundays River Valley	EC131	Izuba Yethemba	EC143	Makelazwi	EC144	Khambula
EC107	Baviaans	EC132	Tsolwana	EC144	Gariep	NMAA	Nelson Mandela Bay A
EC108	Kouga	EC133	Inkwanca	EC153	Nqozu Hill	NMAB	Nelson Mandela Bay B
EC109	Kou-Kamma	EC134	Lukani	EC154	Port St Johns	NMAC	Nelson Mandela Bay C
EC121	Nobushe						

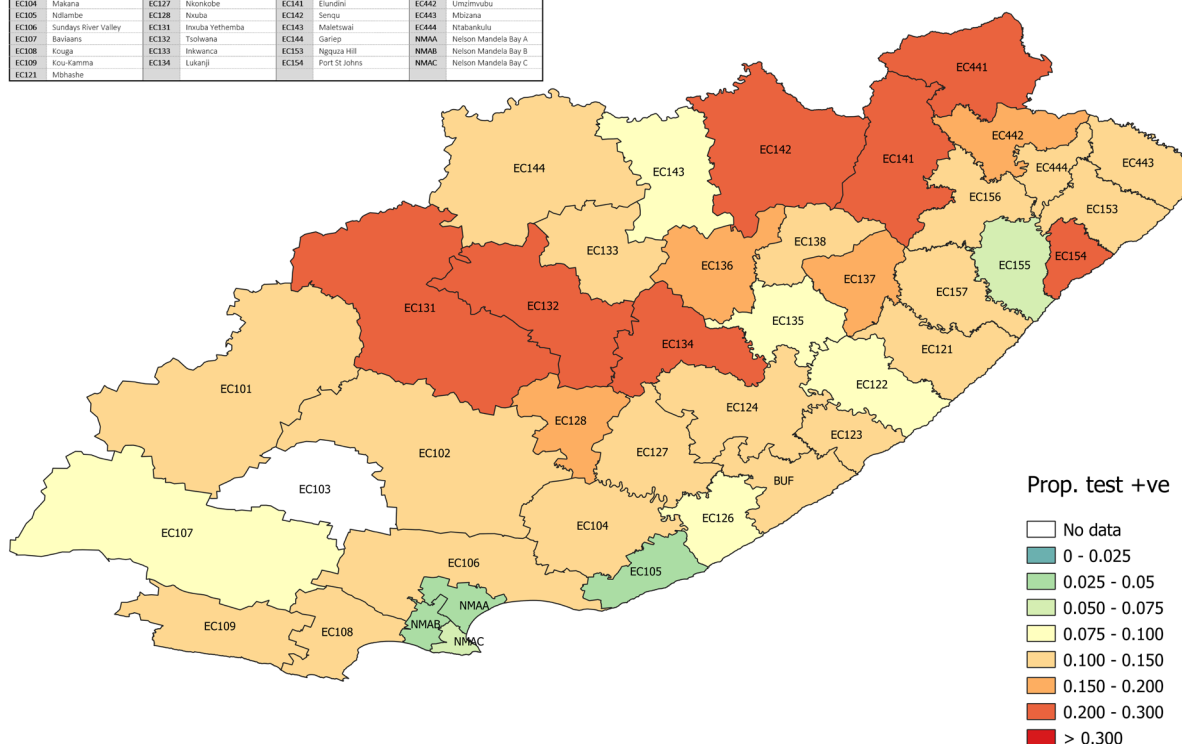


Figure 12. Proportion testing positive by health sub-district in the Eastern Cape province for the week of 17-23 January 2021. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

NC081	Richtersveld	NC074	Kareeberg	NC080	Tsantsabane
NC082	Rama Khol	NC075	Rensosterberg	NC086	Agatlopete
NC084	Kamiesberg	NC076	Thembelivhe	NC091	Sol Plaatje
NC085	Hartam	NC077	Siyuthamba	NC092	Okavango
NC086	Karoo Hooiland	NC078	Siyancuma	NC093	Magareng
NC087	Khal-Ada	NC081	Mier	NC094	Phokwane
NC071	Liburu	NC082	Kai Gaurib	NC451	Jon Monroing
NC072	Umsobomvu	NC083	/Khara Hais	NC452	Ga-Segonyana
NC073	Enthangeni	NC084	Ikheis	NC453	Gamagara

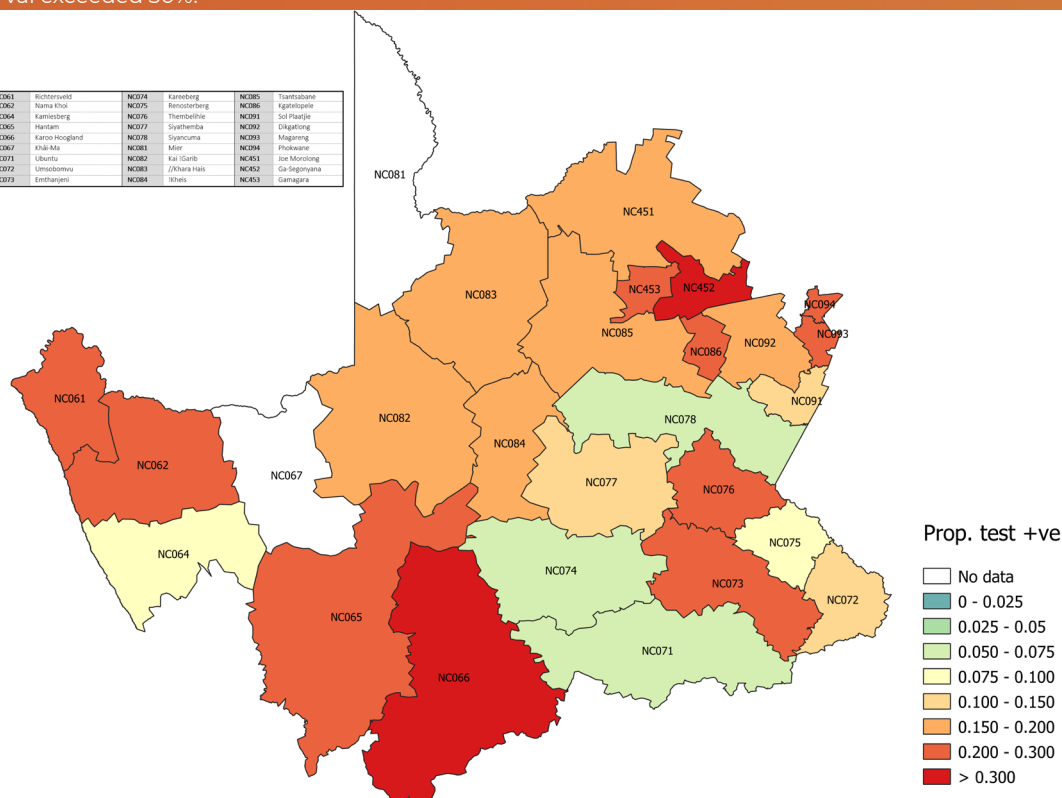


Figure 13. Proportion testing positive by health sub-district in Northern Cape Province for the week of 17-23 January 2021. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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MAN	Mangaung	FS181	Masilonyana	FS191	Setsoho	FS196	Mantsoa
FS161	Letsemeng	FS182	Tokologo	FS192	Dihlabeng	FS201	Moqhaka
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	Mafube

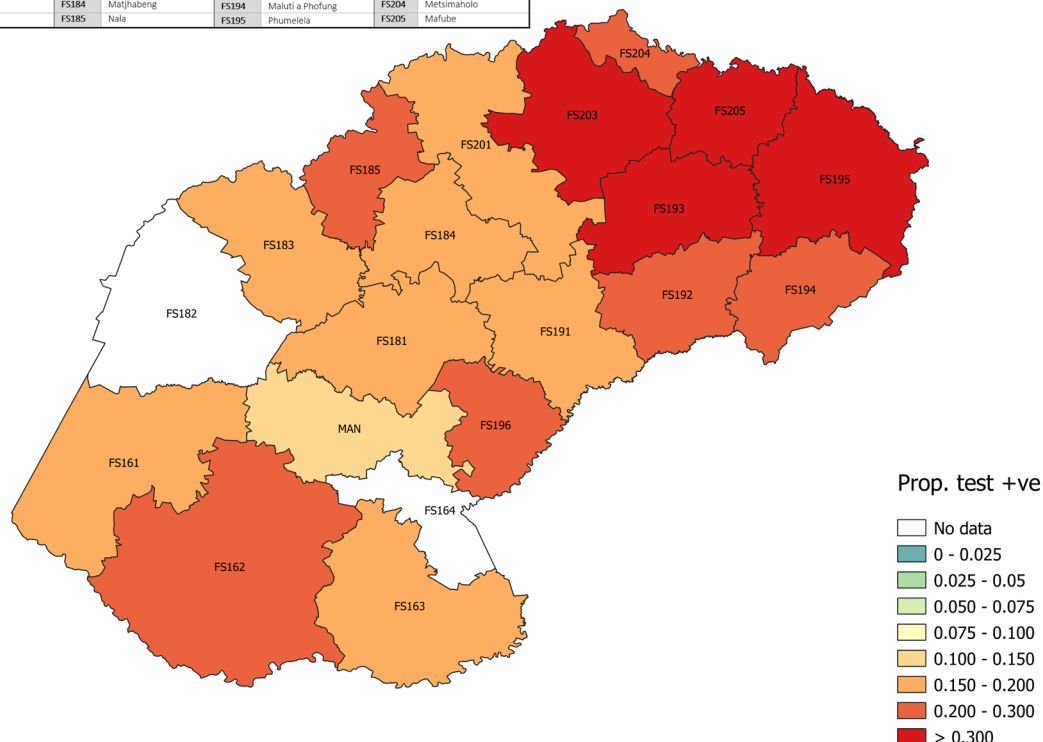


Figure 14. Proportion testing positive by health sub-district in Free State Province for the week of 17-23 January 2021. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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	Imbabazane	KZN281	Mfolozi
KZN211	Vulamehlo	KZN241	Endumeni	KZN282	uMhlathuze
KZN212	Umdoni	KZN242	Nqutu	KZN283	Ntambanana
KZN213	Umcumbi	KZN244	Mzinga	KZN284	uMhlali
KZN214	uMuziwabantu	KZN245	Umvoti	KZN285	Mthonjaneni
KZN215	Ezingoleni	KZN252	Newcastle	KZN286	Nkandla
KZN216	Hlabiscus Coast	KZN253	Emadlangeni	KZN291	Mandeni
KZN221	uMshwathi	KZN254	Dannhauser	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	Umlabuyalingana	KZN434	Uthabietsewe
KZN232	Emnambithi/Ladysmith	KZN272	Jozini	KZN435	Umkhambulu

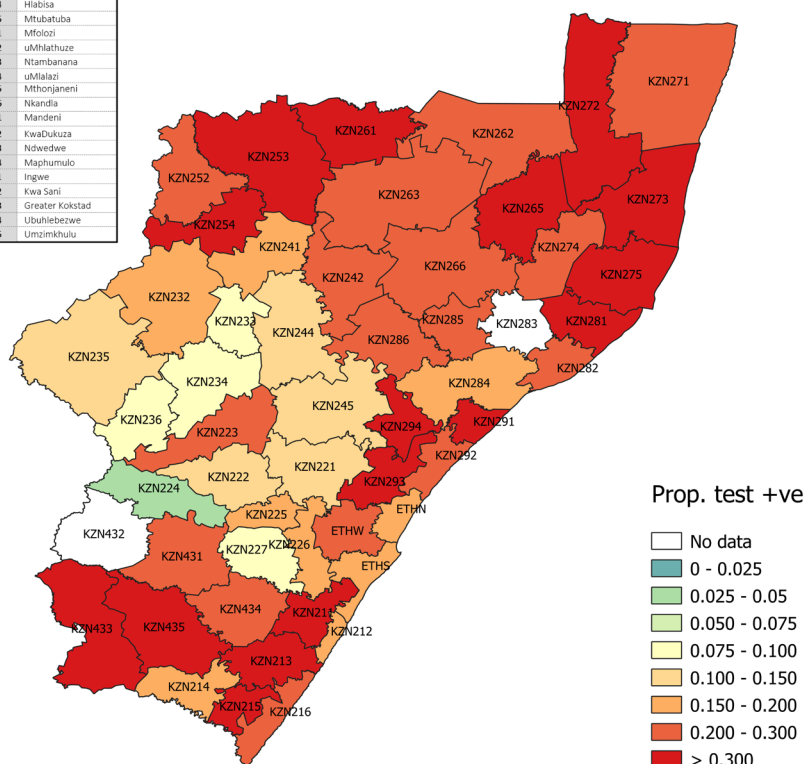


Figure 15. Proportion testing positive by health sub-district in KwaZulu-Natal Province for the week of 17-23 January 2021. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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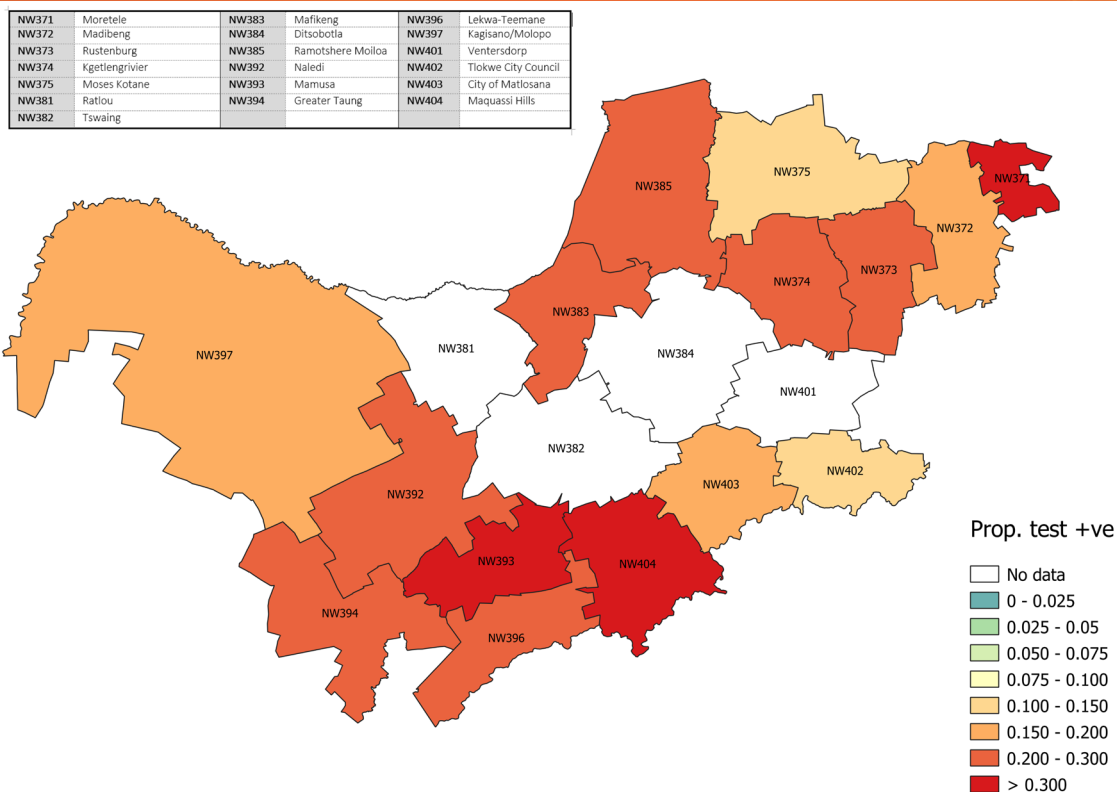


Figure 16. Proportion testing positive by health sub-district in North West Province for the week of 17-23 January 2021. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

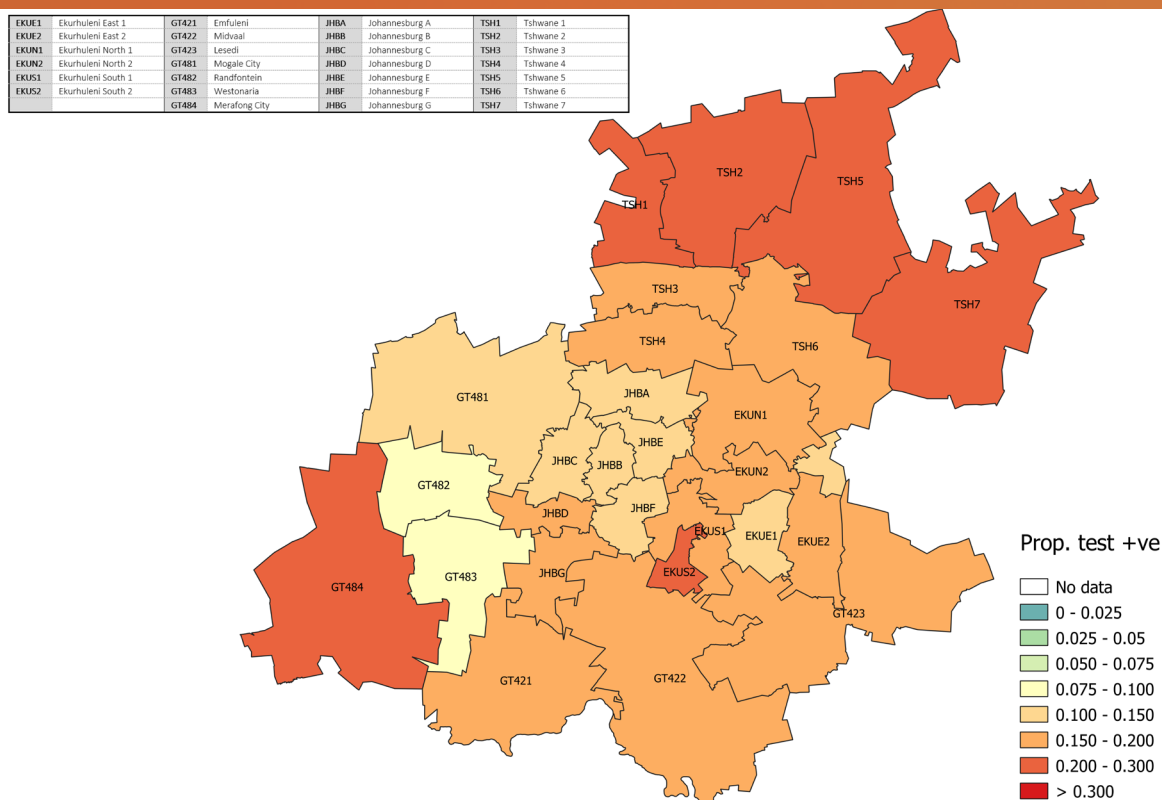


Figure 17. Proportion testing positive by health sub-district in Gauteng Province for the week of 17-23 January 2021. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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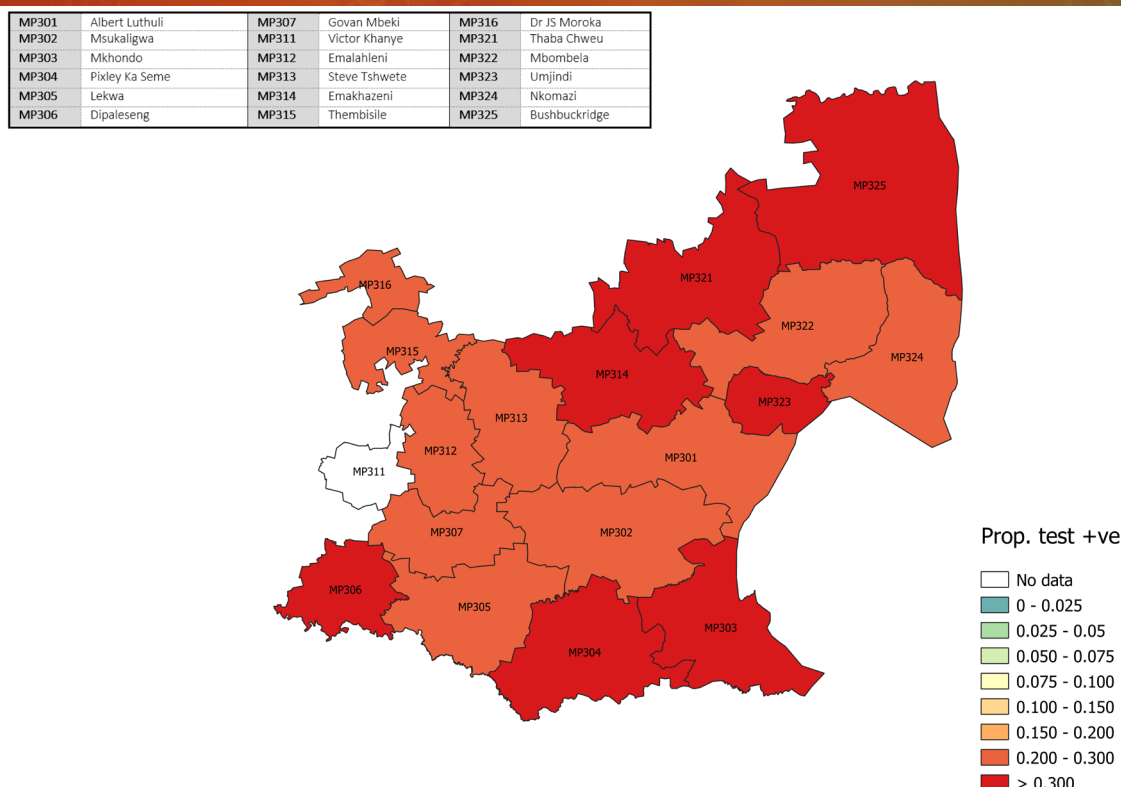


Figure 18. Proportion testing positive by health sub-district in Mpumalanga Province for the week of 17-23 January 2021. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

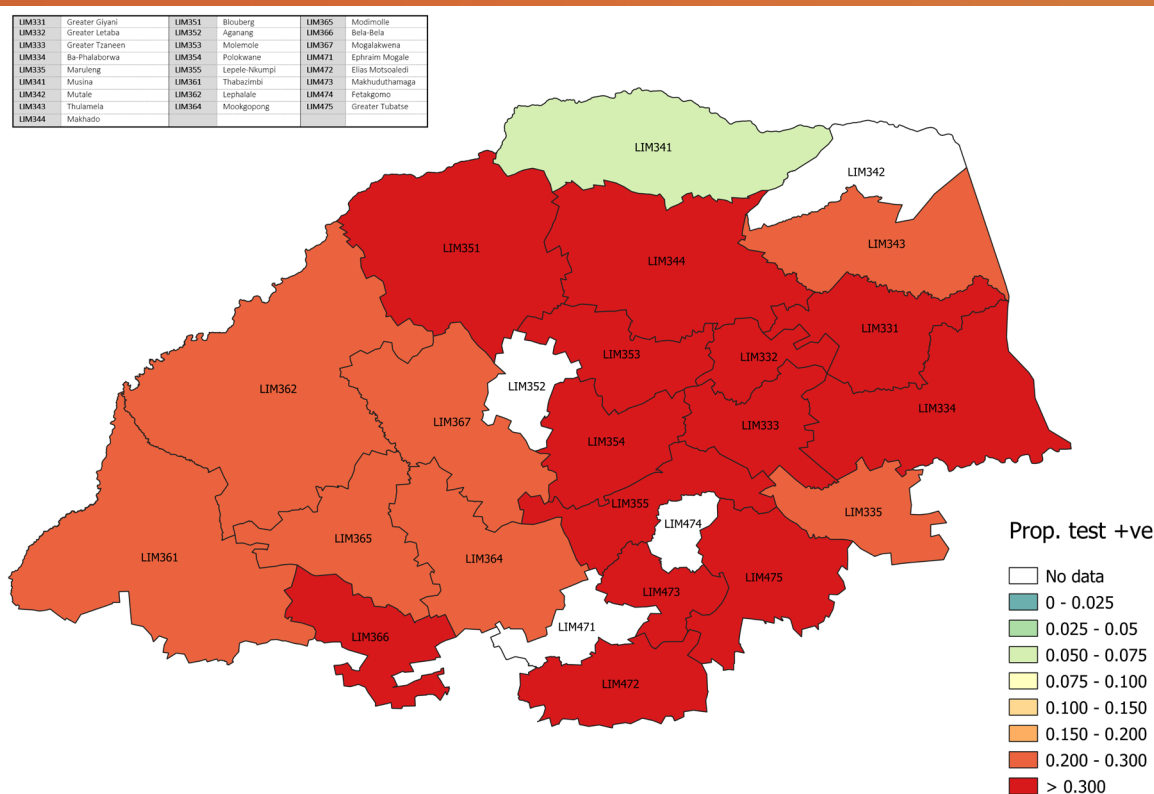


Figure 19. Proportion testing positive by health sub-district in Limpopo Province for the week of 17-23 January 2021. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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Testing by patient admission status

In week 3 of 2021, 30.7% of tests were performed for hospitalised patients; 59.7% in the public sector and 22.5% in the private sector (Figure 20). The percentage testing positive decreased among both inpatients

and outpatients in the past week, and in week 3 was slightly lower among outpatients (19.3%) compared to inpatients (20.8%) (Figure 21). In week 3 of 2021 the mean laboratory turnaround time in the public sector continued to be lower for inpatients (3.7 days) compared to outpatients (4.3 days) (Figure 22).

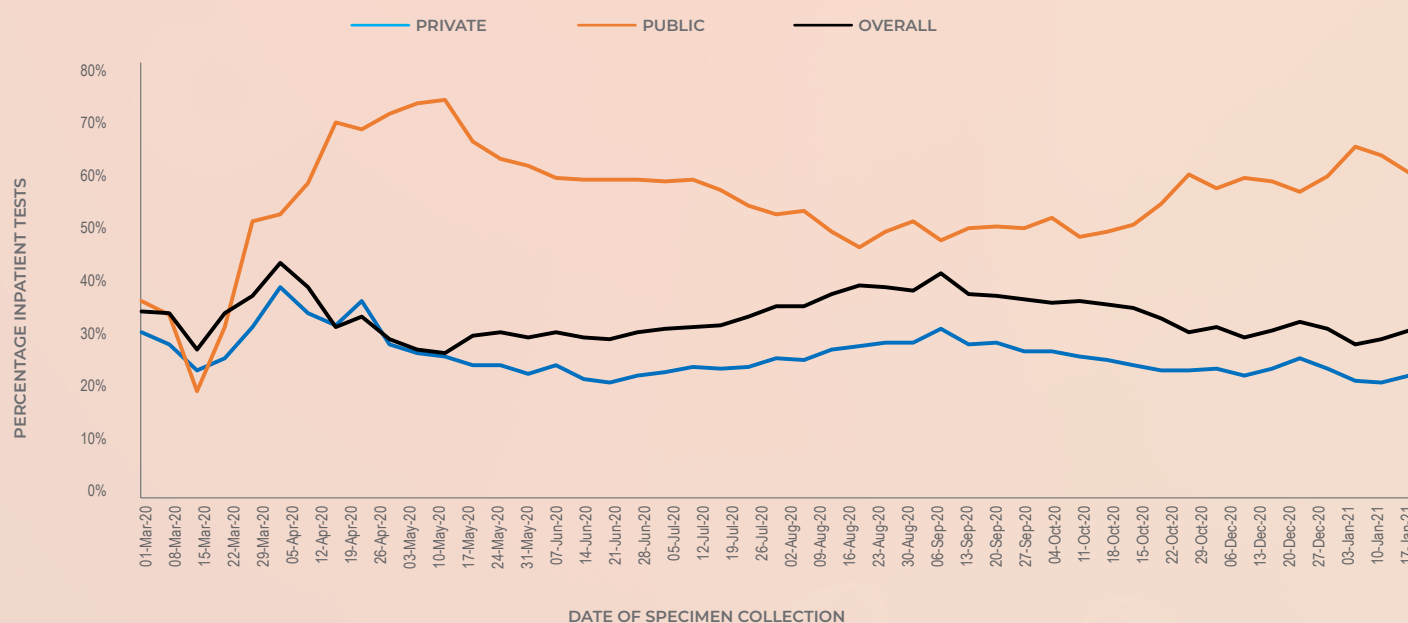


Figure 20. Percentage of inpatient tests performed by health sector, 1 March 2020 – 23 January 2021

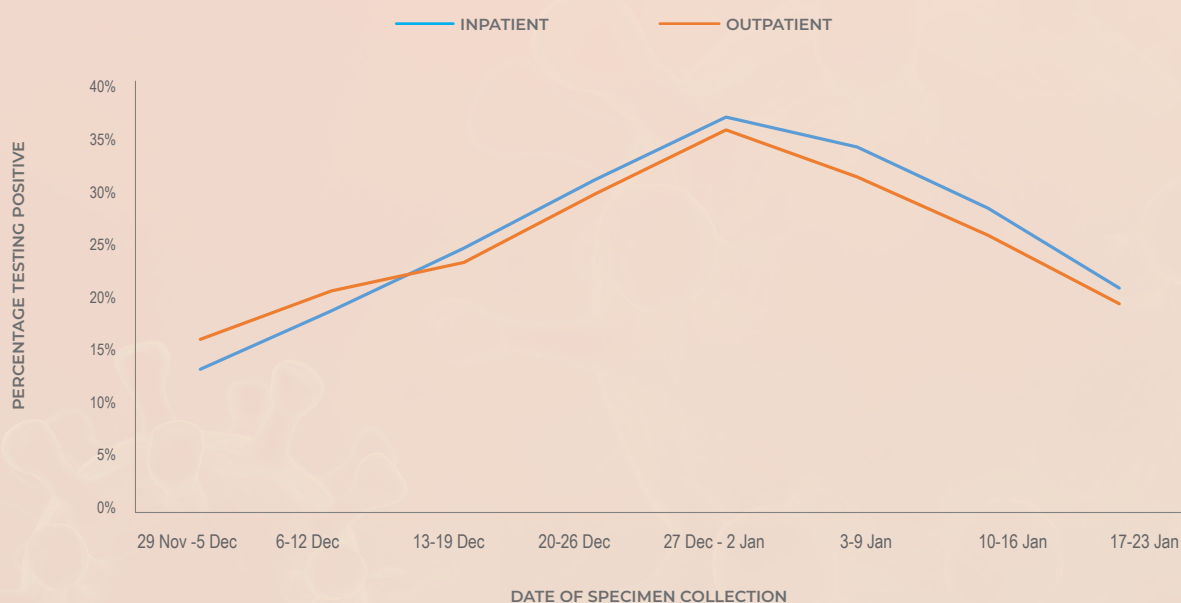


Figure 21. Percentage testing positive by patient admission status in the public sector, 29 November 2020 – 23 January 2021

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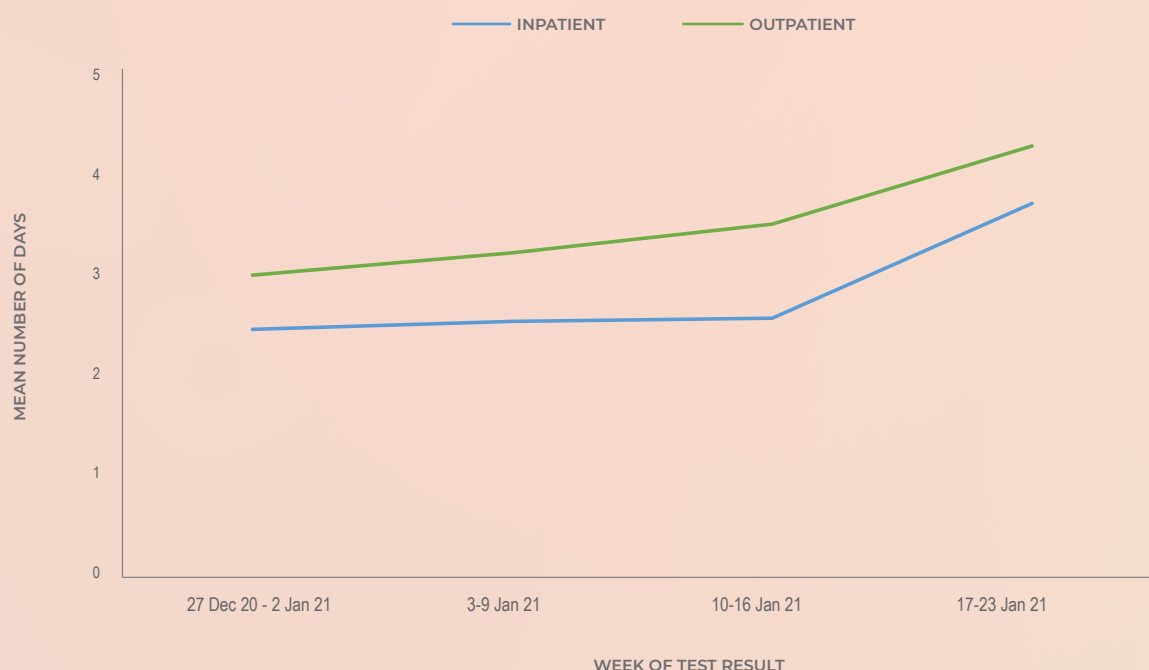


Figure 22. Mean number of days between date of specimen collection and date of test result in the public sector by patient admission status, 27 December 2020 – 23 January 2021

Testing by age and sex

The mean age of individuals tested in week 3 of 2021 was 40.1 years, and was similar among females (40.4 years) and males (40.3 years). As in the previous two weeks, the majority of tests were performed in individuals in the 25-44 years' age groups (Figure 23). In week 3, the

testing rate in males was 448 per 100,000 persons and in females was 505 per 100,000 persons (Figure 24). The highest testing rates were observed in age groups 40-64 and ≥ 80 years of age. The percentage testing positive increased with increasing age, and was higher in females compared to males in all age groups (Figure 24).

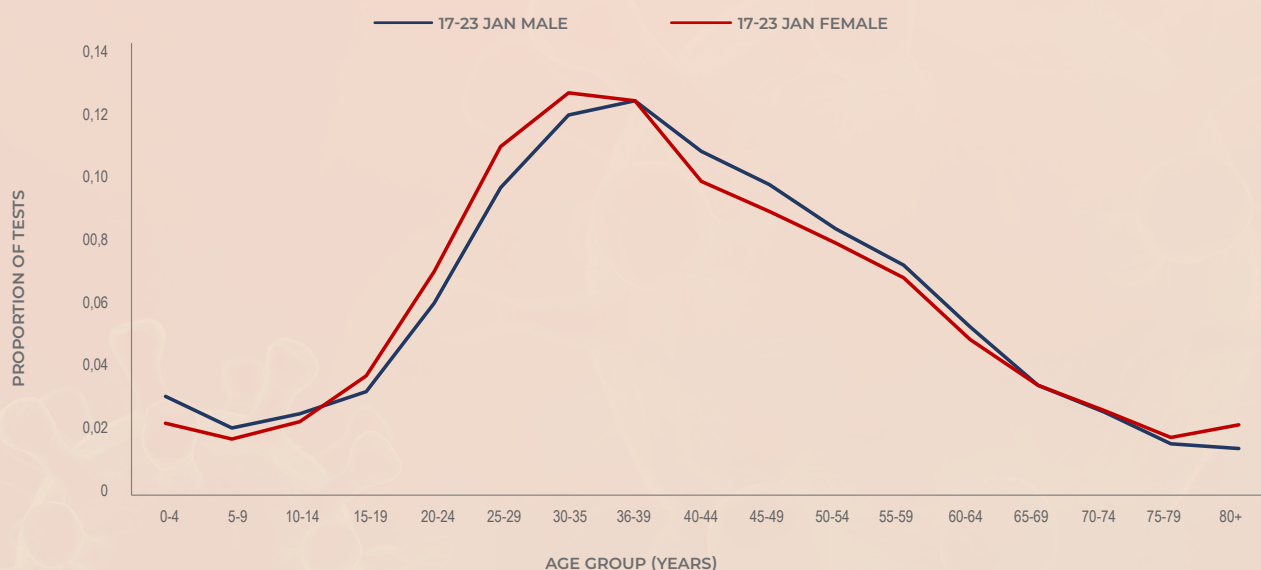


Figure 23. Proportion of tests by age group and sex, South Africa, 17 – 23 January 2021

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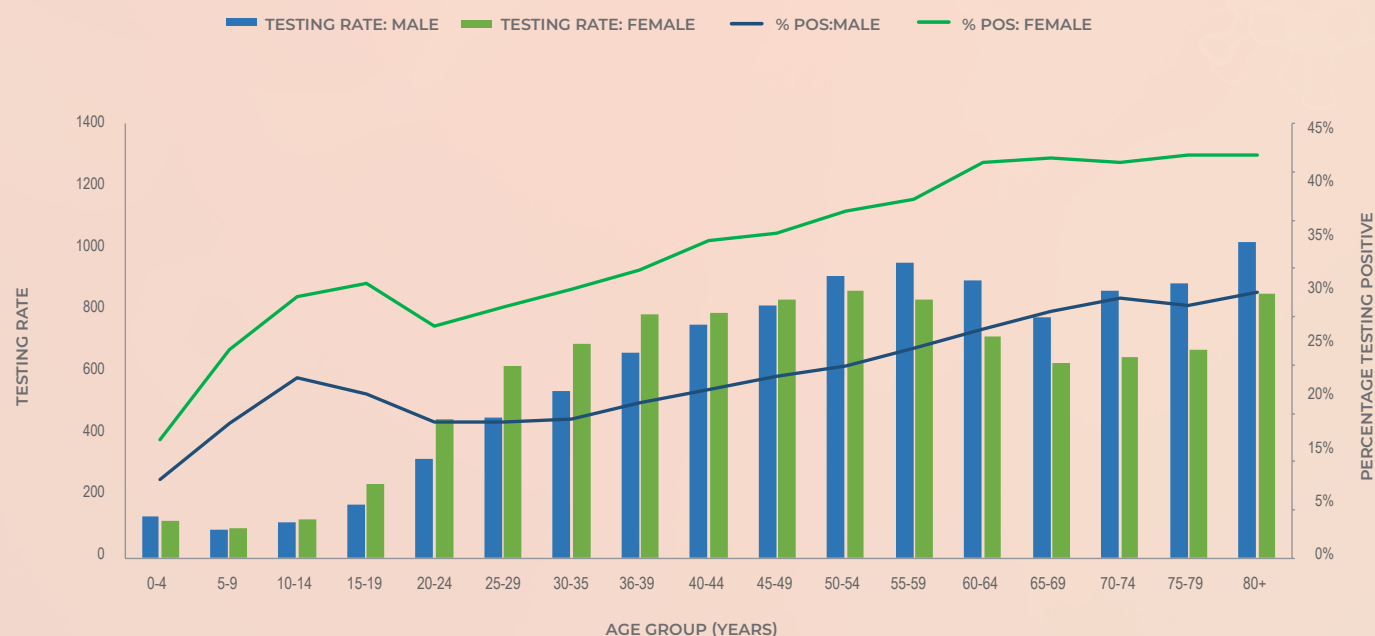


Figure 24. Testing rates per 100,000 persons and percentage testing positive by age group and sex, South Africa, week 3, 17-23 January 2021

Testing by test type

Testing for SARS-CoV-2 using rapid antigen tests was initiated towards the end of October 2020. Up to the end of week 3 of 2021, 241,383 antigen tests had been performed in the public sector (46,396 in week 3). The percentage of antigen tests of all tests conducted has increased over recent weeks from 0.1% in week 44 of 2020 to 15.9% in week 3 of 2021. The majority of antigen tests have been performed in KwaZulu-Natal (n=115,858, 48.0%) and Eastern Cape

(n=49,414, 20.5%) provinces (Figure 25). Over recent weeks the percentage testing positive was higher for PCR tests compared to antigen tests, likely due to the lower sensitivity of antigen tests and the setting in which they were used (Figure 26). Not all antigen tests are included in this report, efforts are ongoing to improve completeness.

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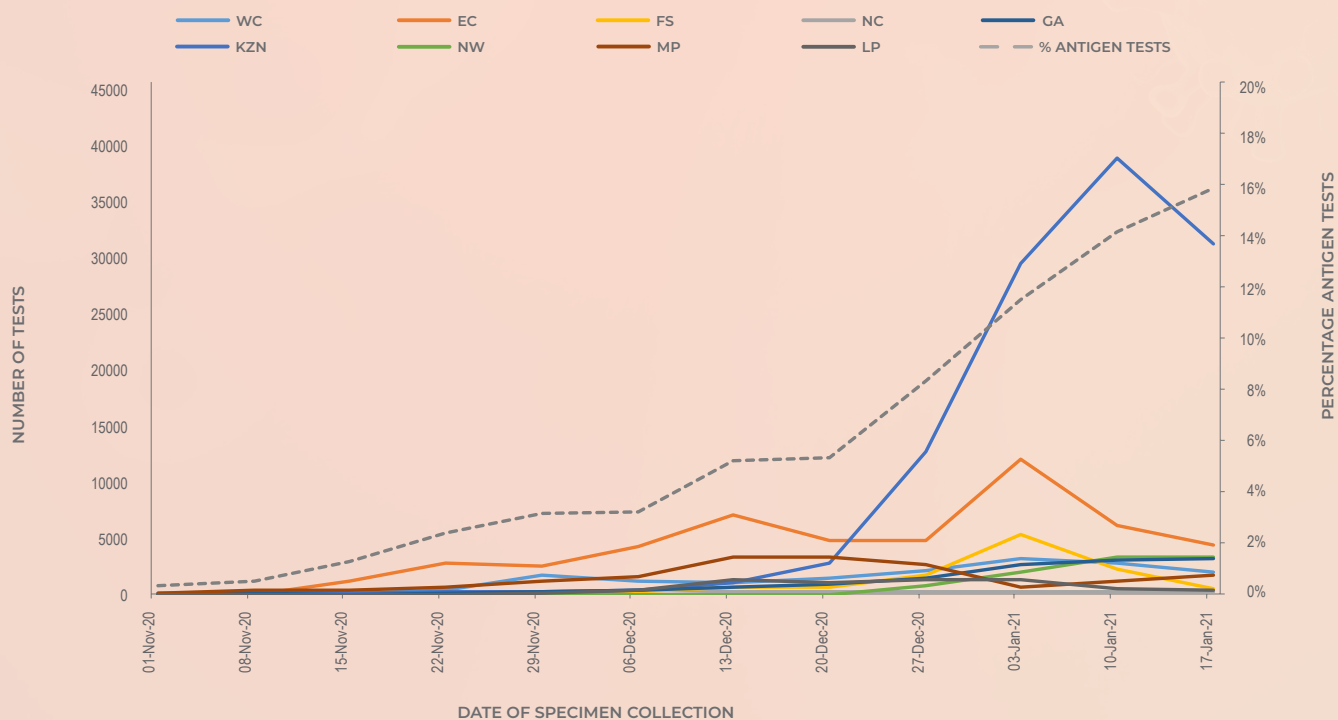


Figure 25. Number of antigen tests by province, and overall percentage antigen tests, South Africa, 1 November 2020 – 23 January 2021. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal; GT, Gauteng; NC, Northern Cape; NW, North West; MP, Mpumalanga; LP, Limpopo

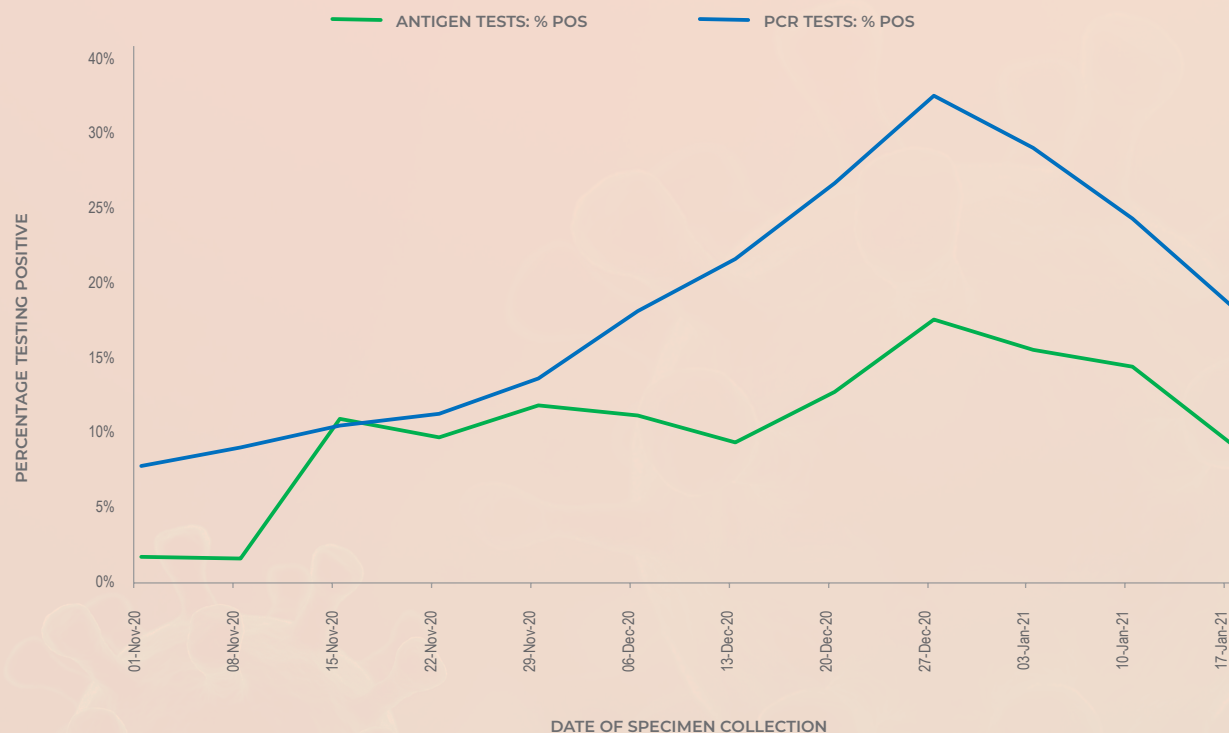


Figure 26. Percentage of laboratory tests positive for SARS-CoV-2 by test type and date of specimen collection, South Africa, 1 November 2020 – 23 January 2021

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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 and PCR vs. antigen-based tests) 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.
- Antigen tests may be underestimated as they are used in a number of different settings and results may not be reported.

CONCLUSIONS

Weekly testing volumes were highest in the first wave of infections in week 28 of 2020 (n=307,900), and in the second wave of infections in week 1 of 2021 (n=482,275). The number of tests performed in week 3 of 2021 (n=290,614) was lower than the previous week. Gauteng (33.0%) performed the largest number of tests in week 3 of 2021, followed by KwaZulu-Natal (26.3%) and Western Cape (13.1%) provinces. KwaZulu-Natal (662 per 100,000 persons), Gauteng (619 per 100,000 persons) and Western Cape (542 per 100,000 persons) provinces had the highest testing rates in week 3 of 2021. The percentage of antigen tests of all tests performed has increased since antigen testing was implemented towards the end of October 2020, and accounted for 15.9% of all tests in week 3. The overall laboratory turnaround time for PCR tests in week 3 of 2021 was 2.4 days; 3.9 days in the public sector and 1.0 days in the private sector.

In the first wave of infections the percentage testing positive peaked at 29.7% in week 29 of 2020, and in the second wave of infections the percentage testing positive peaked at 35.0% in week 53 of 2020. In week 3 of 2021 the percentage testing positive was 19.0%, lower than has been observed in the previous few weeks. The percentage testing positive in week 3 of 2021 was highest in Limpopo (32.5%) and Mpumalanga (25.1%). Percentage testing positive was 17-20% in the Western Cape, Northern Cape, KwaZulu-Natal, North West, Free State and Gauteng, and was <15% in the Eastern Cape in week 3 of 2021. Compared to the previous week, in week 3 the percentage testing positive decreased in all provinces. Districts showing the greatest proportions testing positive are concentrated in KwaZulu-Natal (11 districts), Mpumalanga and Limpopo (5 districts each).