COVID-19 TESTING SUMMARY

NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

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 25 September 2021 (Week 38 of 2021).

HIGHLIGHTS

- The number of tests reported in week 38 of 2021 (n=190,286) was the lowest weekly number of tests reported since early May 2021.
- In week 38 the testing rate decreased in all provinces, and was highest in the Northern Cape (496 per 100,000 persons) and lowest in Limpopo (69 per 100,000 persons).
- In week 38 the percentage testing positive was 6.8%, which was 2.5% lower than the previous week.
- In week 38 compared to the previous week, the percentage testing positive remained the same in the Northern Cape, and decreased in all other provinces.
- The percentage testing positive in week 38 was highest in the Northern Cape (21.4%) and Free State (12.8%) provinces, and was less than 10% in the Western Cape, Eastern Cape, KwaZulu-Natal, North West, Gauteng, Mpumalanga and Limpopo provinces.

Executive Summary:

- In the period 1 March 2020 through 25 September 2021, 17,464,331 tests for SARS-CoV-2 have been reported nationally: 15,174,143 PCR and 2,290,188 antigen tests.
- The number of tests reported in week 38 of 2021 (n=190,286: 159,751 PCR and 30,535 antigen tests) was the lowest weekly number of tests reported since early May 2021. Gauteng reported the largest proportion of tests (32.2%), followed by KwaZulu-Natal (20.3%) and Western Cape (16.1%).
- The overall testing rate decreased from 417 per 100,000 persons in week 37 to 319 per 100,000 persons in week 38.
- In week 38 the testing rate decreased in all provinces, and was highest in the Northern Cape (496 per 100,000 persons) and lowest in Limpopo (69 per 100,000 persons).
- The testing rate in week 38 was highest in the ≥80 years age group (636 per 100,000 persons).
- In week 38 the percentage testing positive was 6.8%, which was 2.5% lower than the previous week (9.4%, P<0.001).
- In the past week the percentage testing positive decreased by 2.5% in the public sector (11.8% in week 37 to 9.3% in week 38, P<0.001) and by 2.2% in the private sector (6.9% in week 37 to 4.7% in week 38, P<0.001).
- In week 38 compared to the previous week, the percentage testing positive was unchanged in Northern Cape and continued to decrease in all other provinces.
- The percentage testing positive in week 38 was highest in the Northern Cape (21.4%) and Free State (12.8%) provinces, and was less than 10% in the Western Cape, Eastern Cape, KwaZulu-Natal, North West, Gauteng, Mpumalanga and Limpopo provinces.
- The percentage testing positive was highest in individuals aged 10-14 years (10.5%), followed by 15-19 years (9.6%).
- Health sub-districts showing the highest percentage testing positive were concentrated in the Northern Cape (n=13), with three in each of the North West, Free State and the Eastern Cape.
- Antigen tests accounted for 16.0% (30,535/190,286) of tests reported in week 38, however the number of antigen tests is likely underestimated due to under-reporting and delayed reporting of antigen tests.
- In week 38 the public sector accounted for 74.7% of antigen tests performed. The majority of antigen tests have been reported from KwaZulu-Natal (33.1%) and Gauteng (18.8%) provinces. In the past few weeks there has been a decrease in the number of antigen tests reported.
- The mean turnaround time for PCR tests reported in week 38 was 1.0 day; 1.5 days in the public sector and 0.7 days in the private sector. Turnaround times for public sector PCR tests were >2 days in the Northern Cape and Free State provinces in the past week.
- The mean turnaround time for antigen tests reported in week 38 was 11.1 days in the public sector and 0.1 days in the private sector.

COVID-19 TESTING SUMMARY

SOUTH AFRICA | WEEK **38** 2021

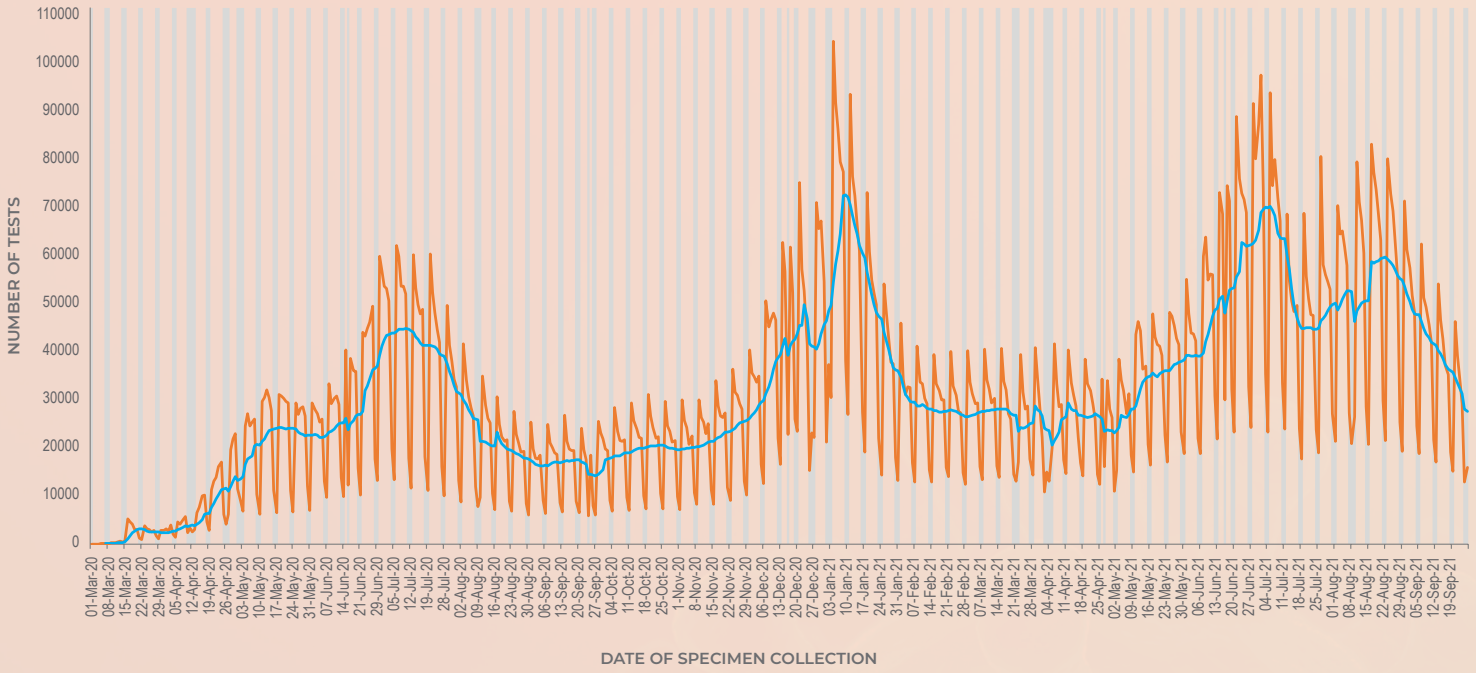

Figure 1. Number of SARS-CoV-2 tests reported by date of specimen collection, South Africa, 1 March 2020 – 25 September 2021. Blue line shows the 7-day moving average of the number of tests reported. Grey bars highlight weekend days and public holidays

Table 1. Weekly number of SARS-CoV-2 tests and positive tests reported, South Africa, 3 January – 25 September 2021

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)
1	03-Jan-21	501172 (2.9)	151035	30.1
2	10-Jan-21	417954 (2.4)	104795	25.1
3	17-Jan-21	327393 (1.9)	63258	19.3
4	24-Jan-21	249505 (1.4)	34638	13.9
5	31-Jan-21	203643 (1.2)	22361	11.0
6	07-Feb-21	193279 (1.1)	16469	8.5
7	14-Feb-21	190637 (1.1)	12184	6.4
8	21-Feb-21	184654 (1.1)	10382	5.6
9	28-Feb-21	189429 (1.1)	8686	4.6
10	07-Mar-21	193373 (1.1)	8325	4.3
11	14-Mar-21	185480 (1.1)	8152	4.4
12	21-Mar-21	173003 (1.0)	7351	4.2
13	28-Mar-21	163923 (0.9)	7060	4.3
14	04-Apr-21	180775 (1.0)	7289	4.0
15	11-Apr-21	184610 (1.1)	8844	4.8
16	18-Apr-21	184850 (1.1)	9467	5.1
17	25-Apr-21	159978 (0.9)	9179	5.7
18	02-May-21	193833 (1.1)	13450	6.9
19	09-May-21	239845 (1.4)	19926	8.3
20	16-May-21	248417 (1.4)	24203	9.7
21	23-May-21	262111 (1.5)	29681	11.3
22	30-May-21	269854 (1.5)	35961	13.3
23	06-Jun-21	335612 (1.9)	58844	17.5
24	13-Jun-21	366262 (2.1)	86635	23.7
25	20-Jun-21	428151 (2.5)	116687	27.3
26	27-Jun-21	483107 (2.8)	143773	29.8
27	04-Jul-21	437945 (2.5)	139301	31.8
28	11-Jul-21	315518 (1.8)	99255	31.5
29	18-Jul-21	308009 (1.8)	86762	28.2
30	25-Jul-21	343436 (2.0)	86728	25.3
31	01-Aug-21	363164 (2.1)	86327	23.8
32	08-Aug-21	349451 (2.0)	81753	23.4
33	15-Aug-21	410784 (2.4)	93520	22.8
34	22-Aug-21	381455 (2.2)	76766	20.1
35	29-Aug-21	329182 (1.9)	53711	16.3
36	05-Sep-21	286908 (1.6)	37766	13.2
37	12-Sep-21	248545 (1.4)	23259	9.4
38	19-Sep-21	190286 (1.1)	12965	6.8
	Total	**17,464,331 (100.0)**	**3,081,658**	

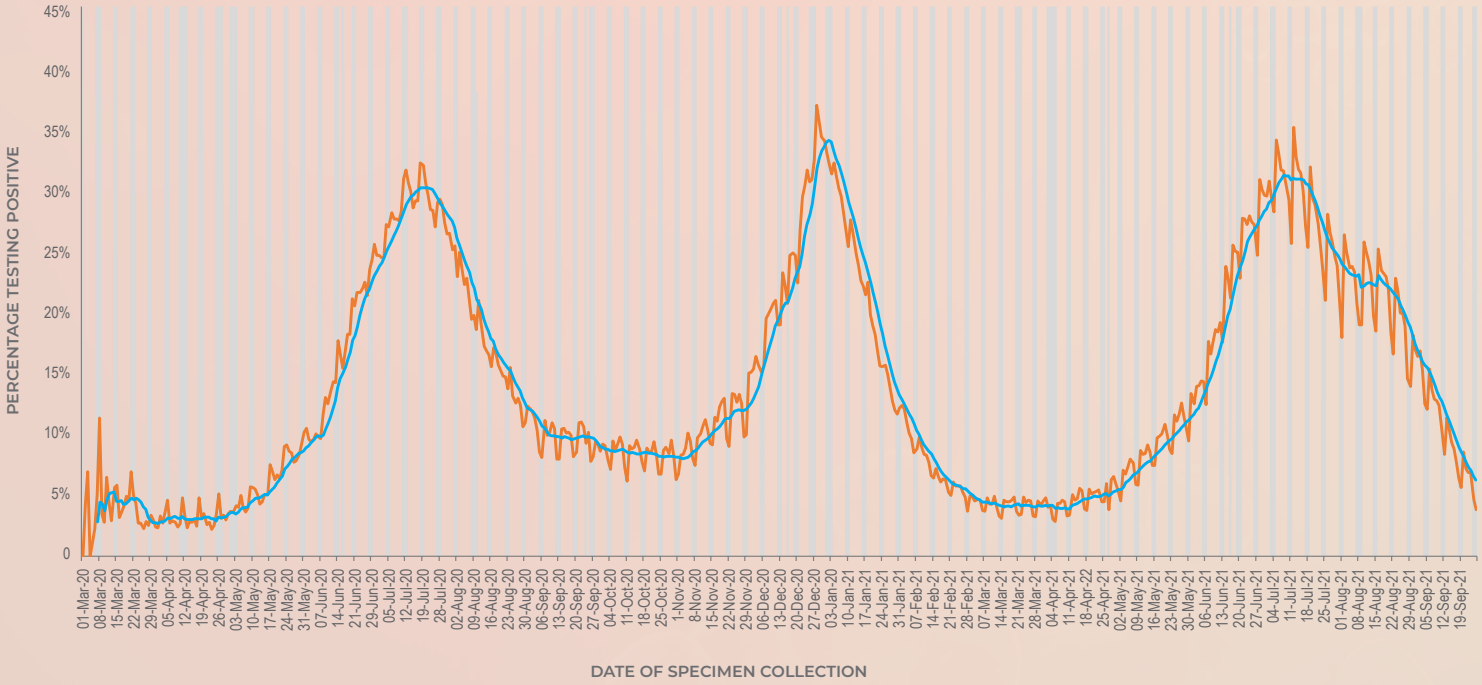

Figure 2. Percentage of tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March 2020 – 25 September 2021. Blue line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

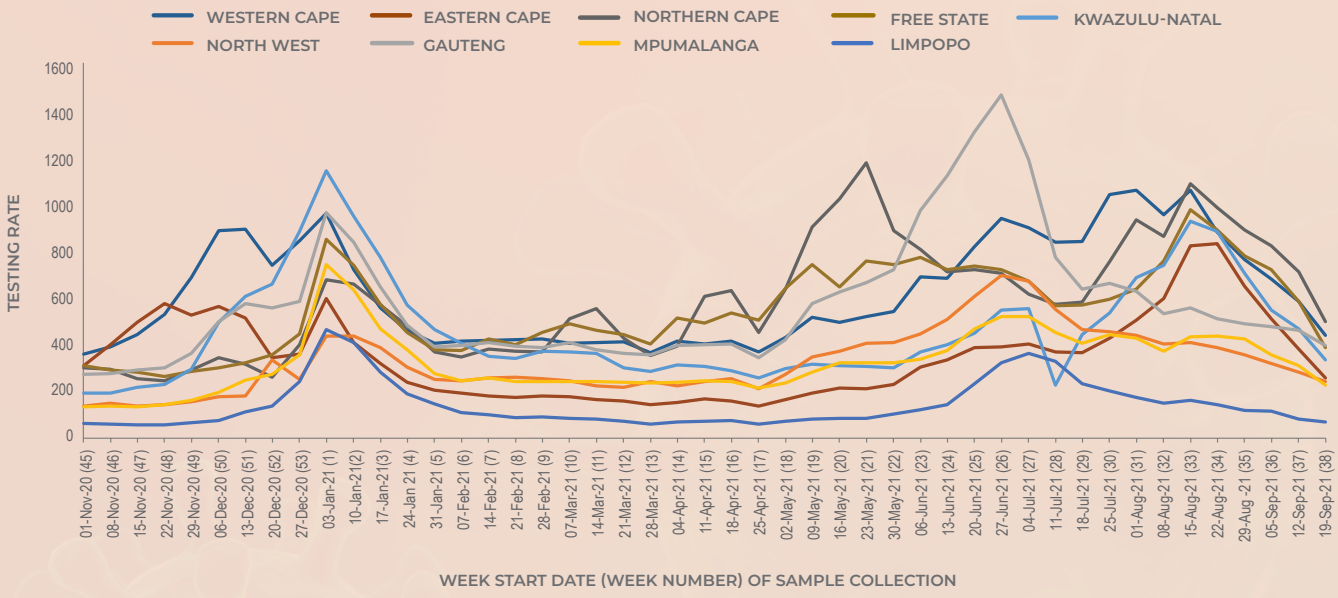

Figure 3. Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 1 November 2020 – 25 September 2021

Table 2. Weekly number of tests and positive tests reported by province, South Africa, 5 – 25 September 2021

		5-11 Sep 2021		12-18 Sep 2021		19-25 Sep 2021			
Province	**Population[a]**	**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[b]**
Western Cape	7005741	47635	7620 (16.0)	40938	4553 (11.1)	30711	2473 (8.1)	438	-3.1%
Eastern Cape	6734001	34312	6243 (18.2)	25492	3266 (12.8)	17381	1656 (9.5)	258	-3.3%
Northern Cape	1292786	10599	2679 (25.3)	9182	2051 (22.3)	6409	1373 (21.4)	496	-0.9%
Free State	2928903	21038	3925 (18.7)	17066	2541 (14.9)	11278	1445 (12.8)	385	-2.1%
KwaZulu-Natal	11531628	63142	9291 (14.7)	53615	5594 (10.4)	38577	2850 (7.4)	335	-3.0%
North West	4108816	13110	1869 (14.3)	11622	1158 (10.0)	9964	651 (6.5)	243	-3.4%
Gauteng	15488137	73619	3641 (4.9)	71307	2631 (3.7)	61345	1654 (2.7)	396	-1.0%
Mpumalanga	4679786	16649	1821 (10.9)	14526	1191 (8.2)	10595	693 (6.5)	226	-1.7%
Limpopo	5852553	6780	676 (10.0)	4782	273 (5.7)	4016	170 (4.2)	69	-1.5%
Unknown		24	1 (4.2)	15	1 (6.7)	10	0 (0.0)		
Total	**59622350**	**286908**	**37766 (13.2)**	**248545**	**23259 (9.4)**	**190286**	**12965 (6.8)**	**319**	**-2.5%**

a 2020 Mid-year population Statistics SA

b Current week compared to previous week

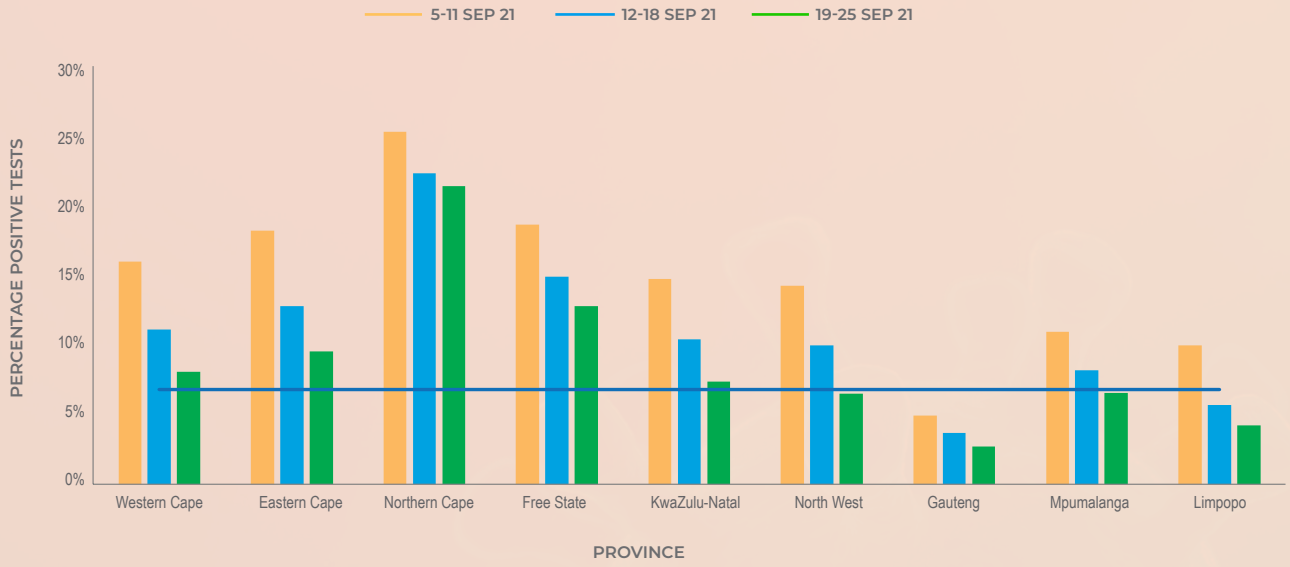

Figure 4. Weekly percentage testing positive by province, South Africa, 5 – 25 September 2021. The horizontal blue line shows the national mean for week 38, beginning 19 September 2021

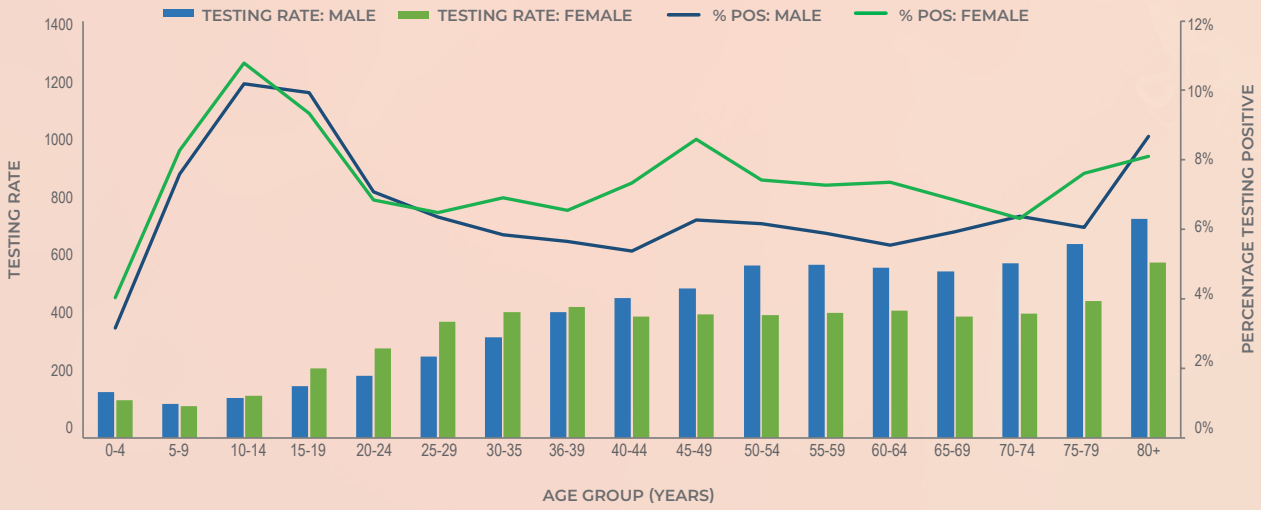

Figure 5. Testing rates per 100,000 persons and percentage testing positive by age group and sex, South Africa, week 38, 19-25 September 2021

Table 3. Health sub-districts with the highest proportion testing positive based on public and private sector data for the week of 19-25 September 2021

Health district or sub-district	Province	PTP (95% CI)	Previous week
Joe Morolong	Northern Cape	0.457 (0.349-0.565)	0.272 (0.197-0.347)
Cederberg	Western Cape	0.381 (0.273-0.490)	0.324 (0.239-0.409)
Ubuntu	Northern Cape	0.378 (0.236-0.520)	0.262 (0.154-0.369)
Magareng	Northern Cape	0.371 (0.266-0.475)	0.240 (0.162-0.318)
Ga-Segonyana	Northern Cape	0.367 (0.306-0.427)	0.302 (0.247-0.357)
Khâi-Ma	Northern Cape	0.360 (0.277-0.443)	0.151 (0.108-0.193)
Tsantsabane	Northern Cape	0.348 (0.241-0.455)	0.315 (0.246-0.384)
Kai Garib	Northern Cape	0.306 (0.194-0.418)	0.280 (0.220-0.341)
Siyancuma	Northern Cape	0.305 (0.236-0.375)	0.253 (0.203-0.303)
Emthanjeni	Northern Cape	0.296 (0.233-0.359)	0.200 (0.151-0.248)
Greater Taung	North West	0.295 (0.180-0.409)	0.274 (0.184-0.365)
Setsoto	Free State	0.293 (0.222-0.365)	0.196 (0.154-0.238)
Gariep	Eastern Cape	0.284 (0.172-0.396)	0.070 (0.032-0.108)
Swellendam	Western Cape	0.278 (0.218-0.338)	0.260 (0.203-0.317)
Siyathemba	Northern Cape	0.274 (0.214-0.335)	0.277 (0.225-0.330)
Ezingoleni	KwaZulu-Natal	0.274 (0.135-0.412)	0.268 (0.151-0.384)
Elundini	Eastern Cape	0.265 (0.169-0.360)	0.191 (0.126-0.256)
Hantam	Northern Cape	0.261 (0.190-0.332)	0.301 (0.245-0.357)
Gamagara	Northern Cape	0.256 (0.206-0.306)	0.290 (0.253-0.328)
Lekwa-Teemane	North West	0.242 (0.103-0.382)	...
Richtersveld	Northern Cape	0.241 (0.134-0.347)	0.268 (0.193-0.344)
Nala	Free State	0.239 (0.145-0.334)	0.209 (0.145-0.272)
Tswaing	North West	0.236 (0.107-0.364)	0.210 (0.104-0.316)
Senqu	Eastern Cape	0.231 (0.154-0.308)	0.085 (0.053-0.118)
Mohokare	Free State	0.225 (0.154-0.295)	0.157 (0.111-0.204)

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.

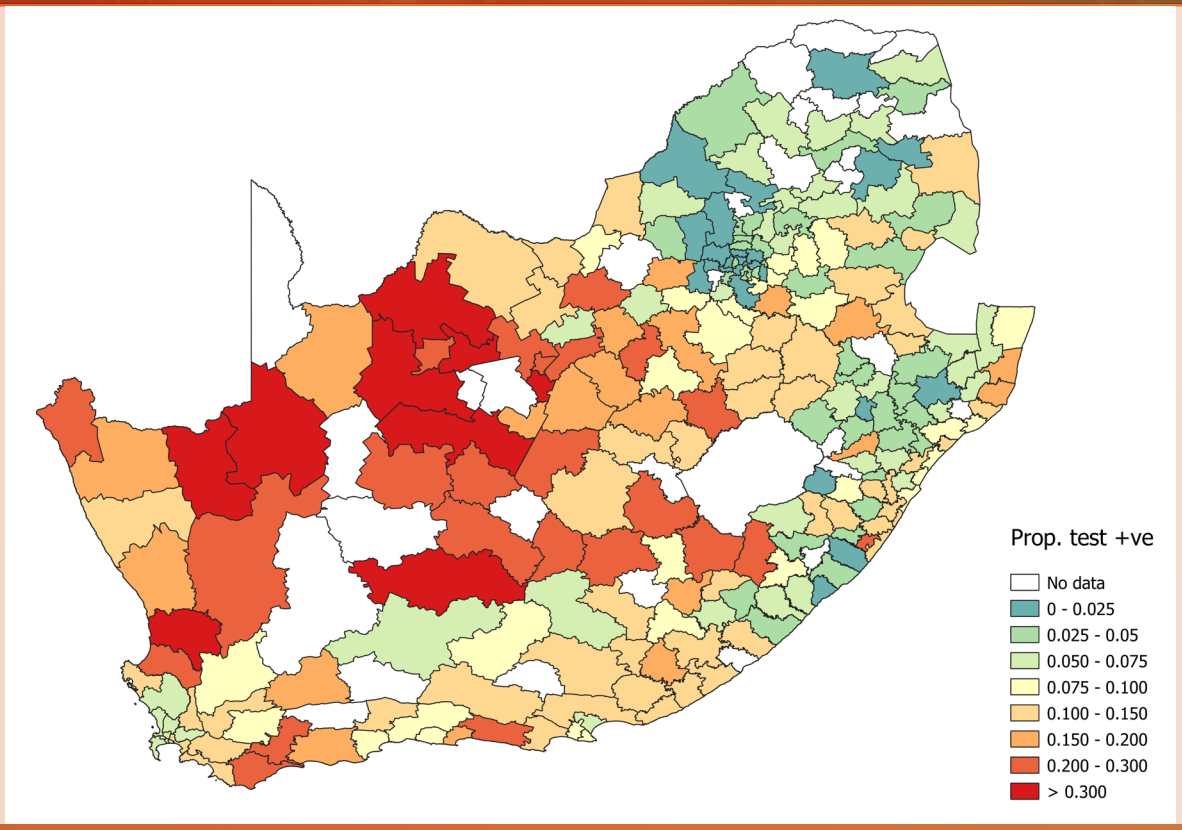

Figure 6. Proportion testing positive by health sub-district in South Africa for the week of 19-25 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

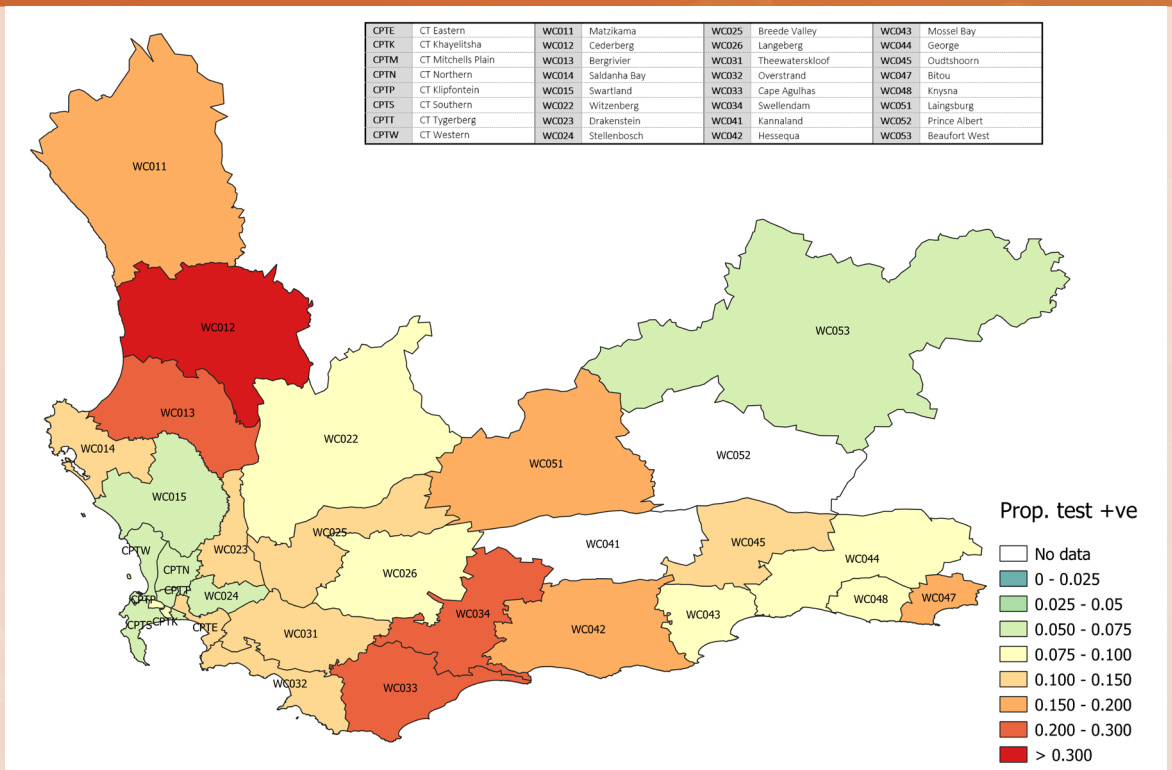

Figure 7. Proportion testing positive by health sub-district in the Western Cape Province for the week of 19-25 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%

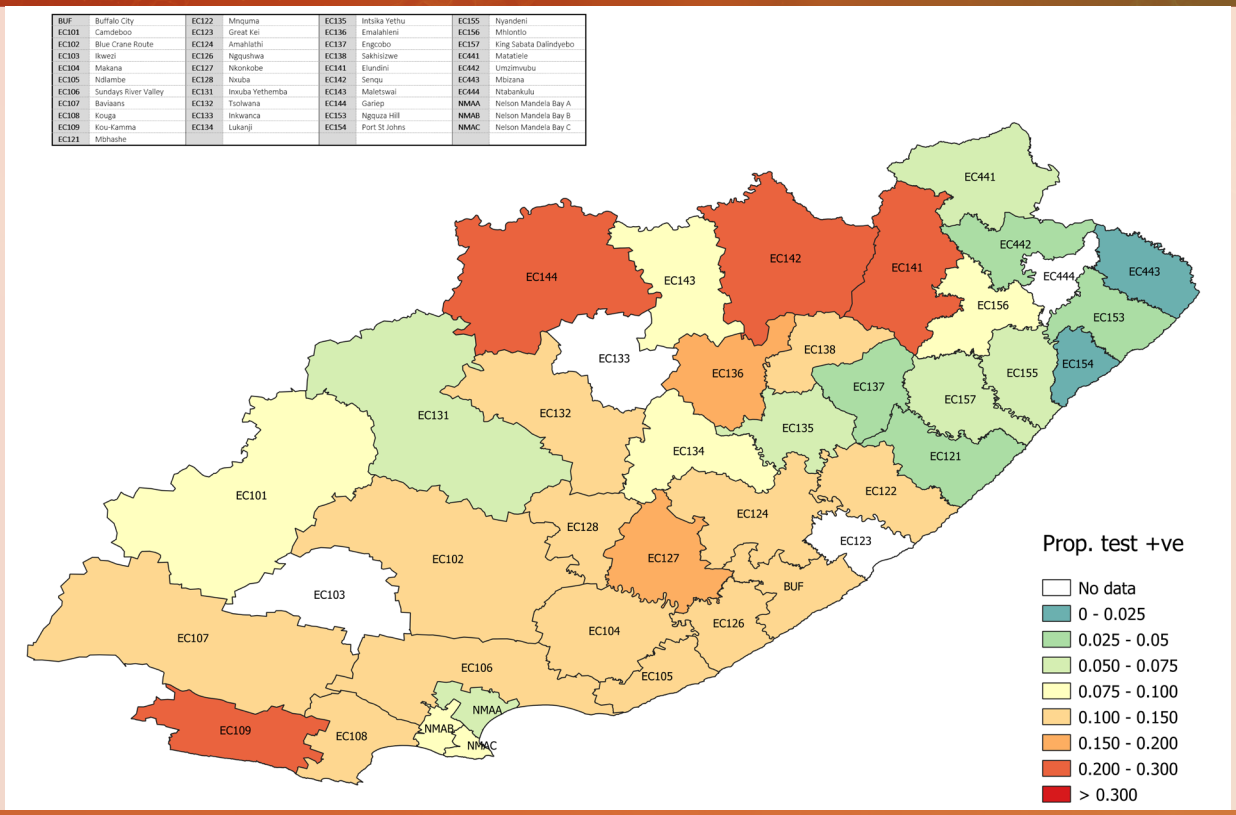

Figure 8. Proportion testing positive by health sub-district in the Eastern Cape Province for the week of 19-25 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

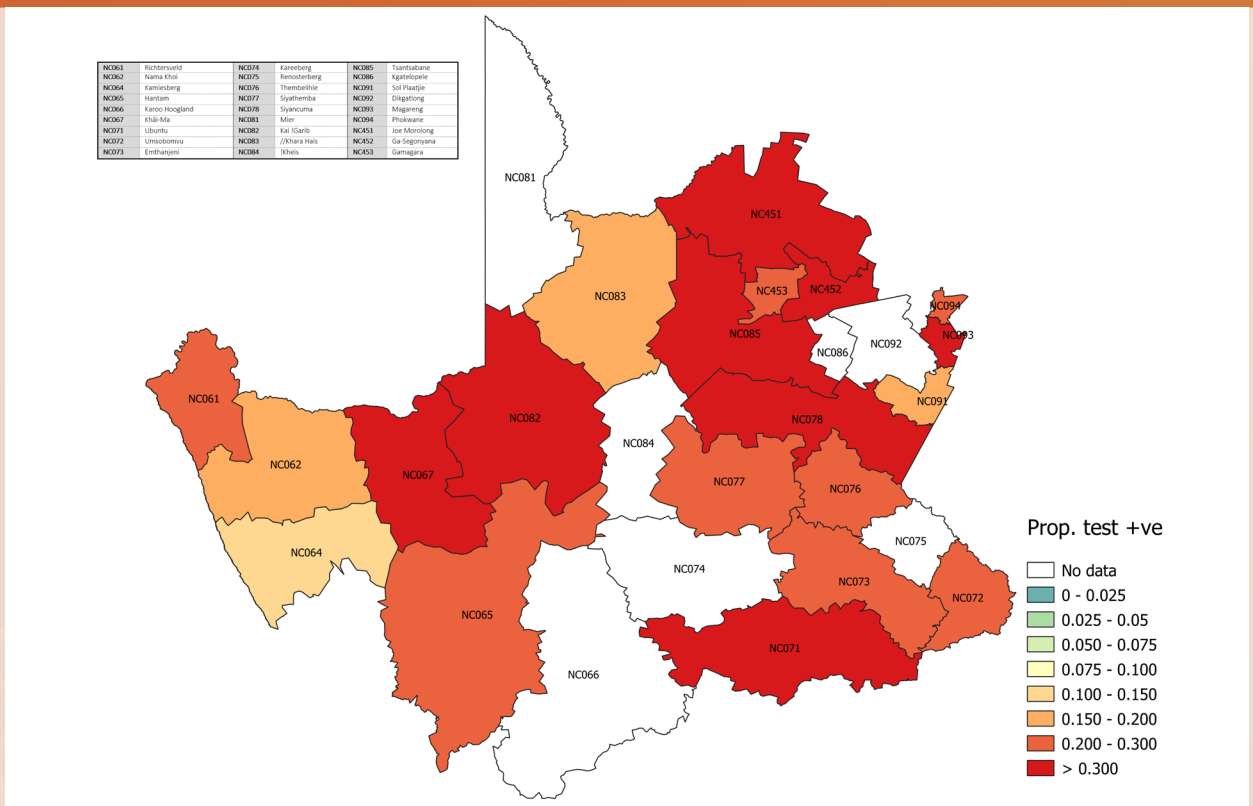

Figure 9. Proportion testing positive by health sub-district in Northern Cape Province for the week of 19-25 September. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

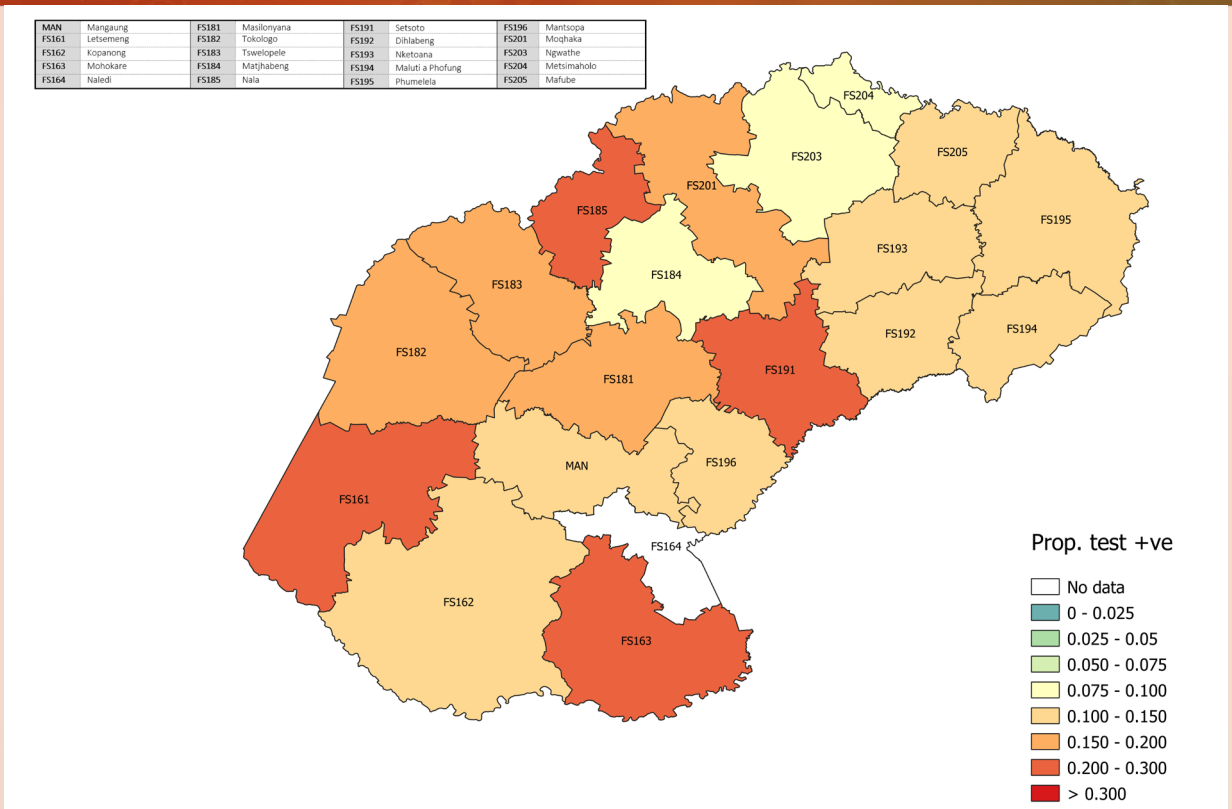

Figure 10. Proportion testing positive by health sub-district in Free State Province for the week of 19-25 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

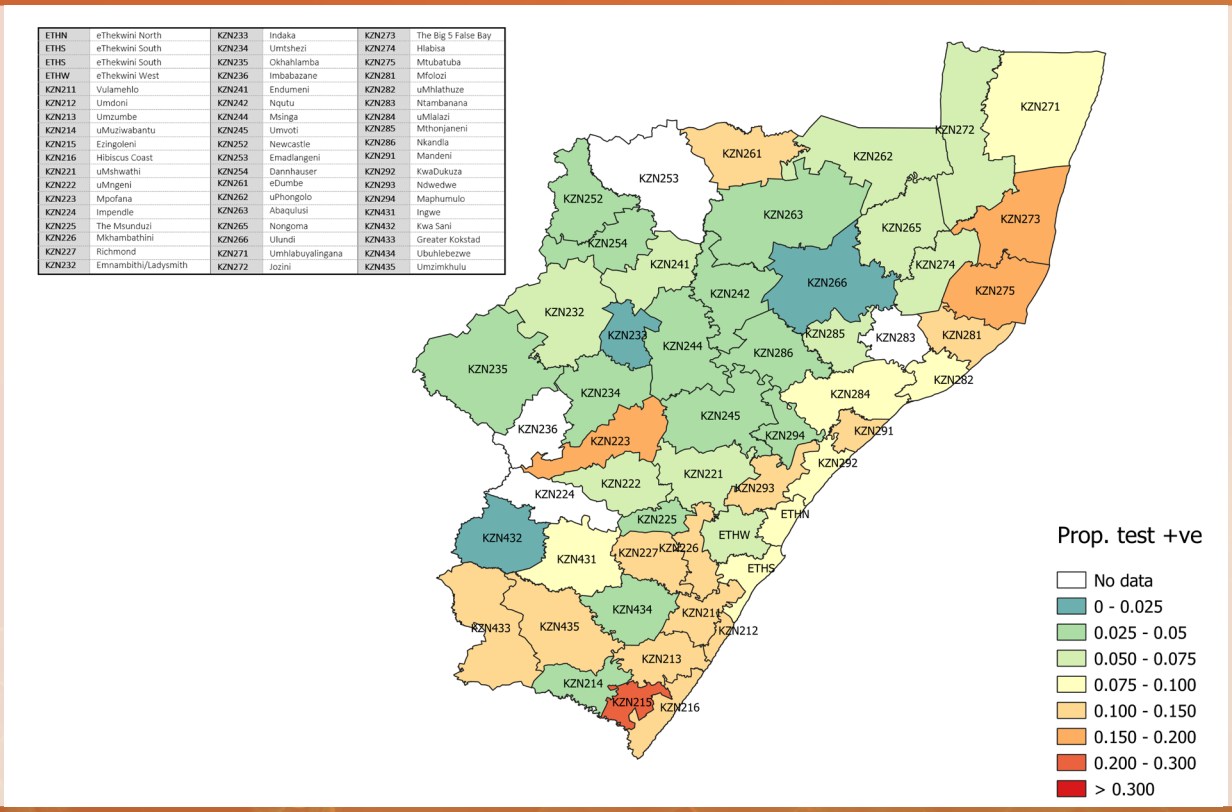

Figure 11. Proportion testing positive by health sub-district in KwaZulu-Natal Province for the week of 19-25 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

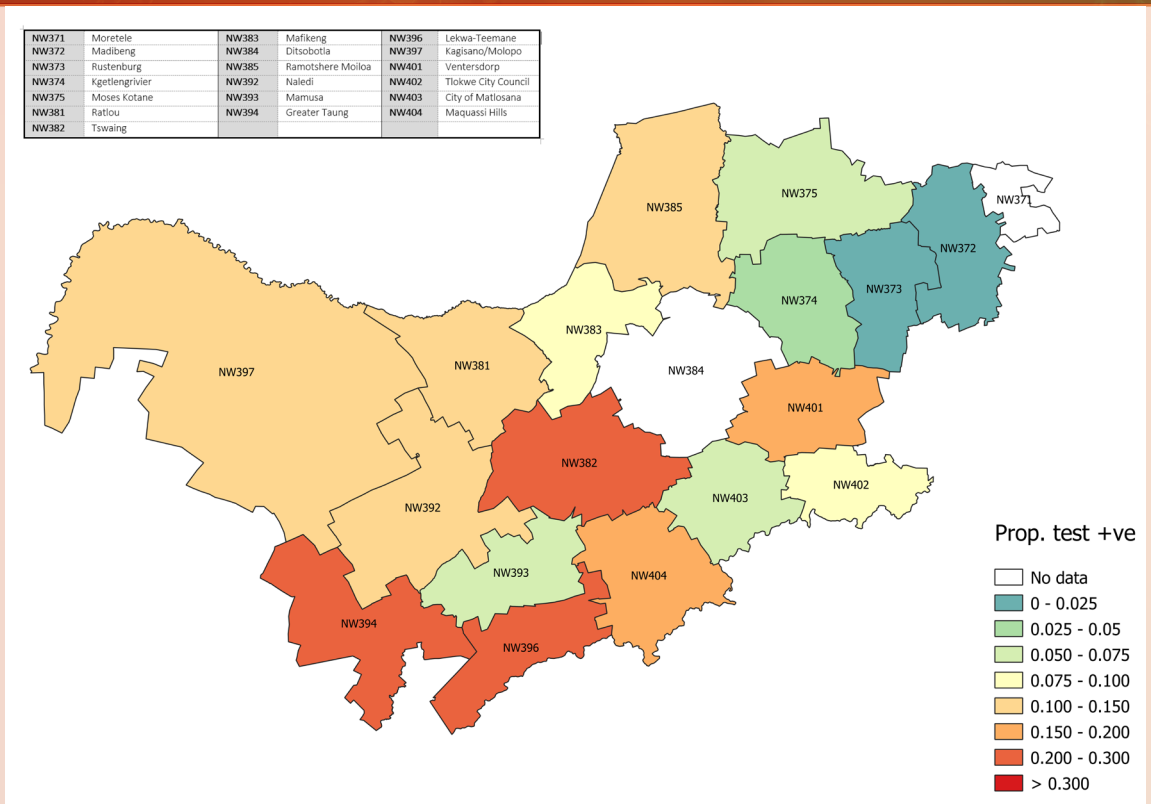

Figure 12. Proportion testing positive by health sub-district in North West Province for the week of 19-25 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

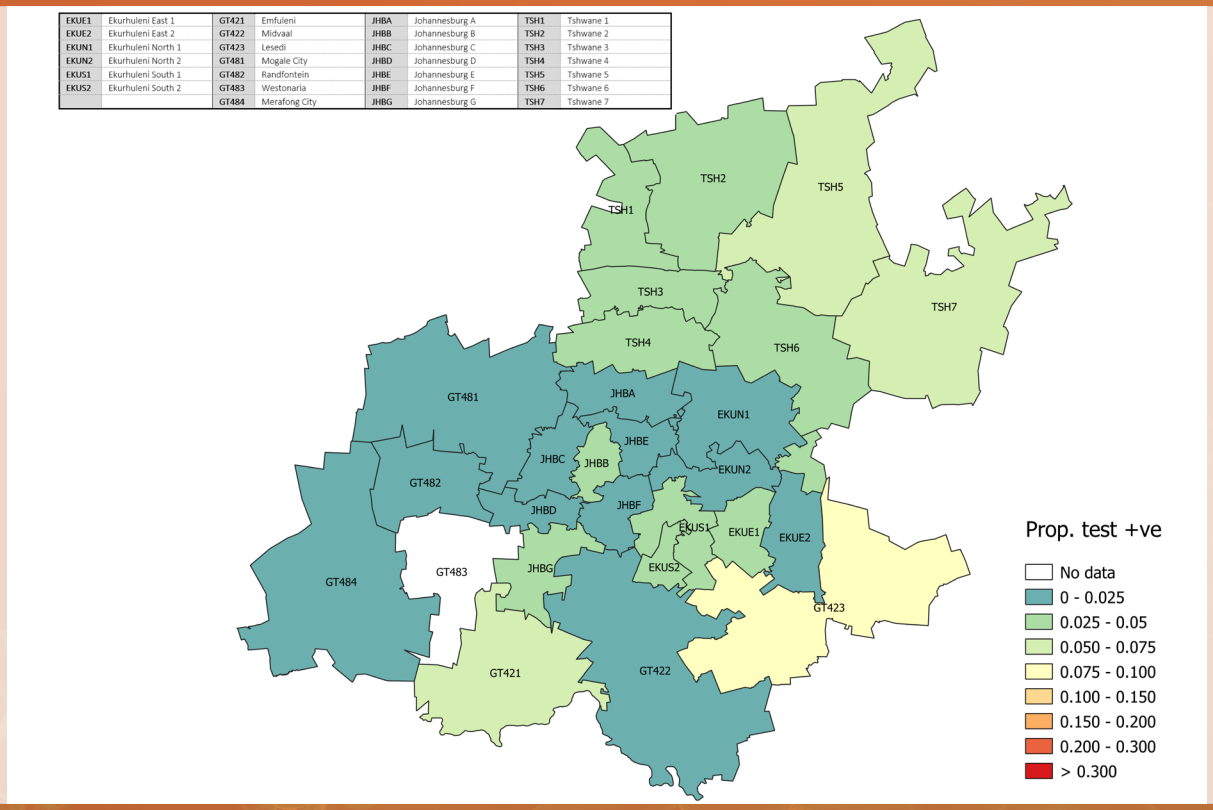

Figure 13. Proportion testing positive by health sub-district in Gauteng Province for the week of 19-25 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

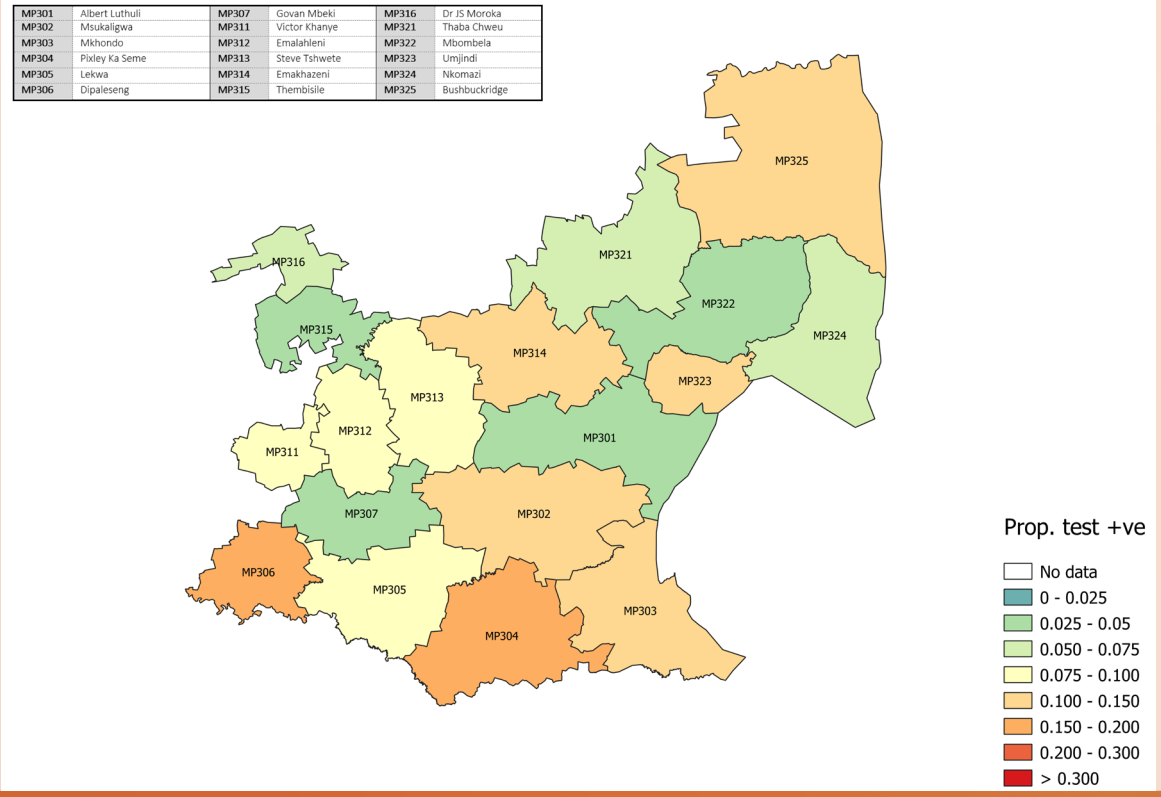

Figure 14. Proportion testing positive by health sub-district in Mpumalanga Province for the week of 19-25 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

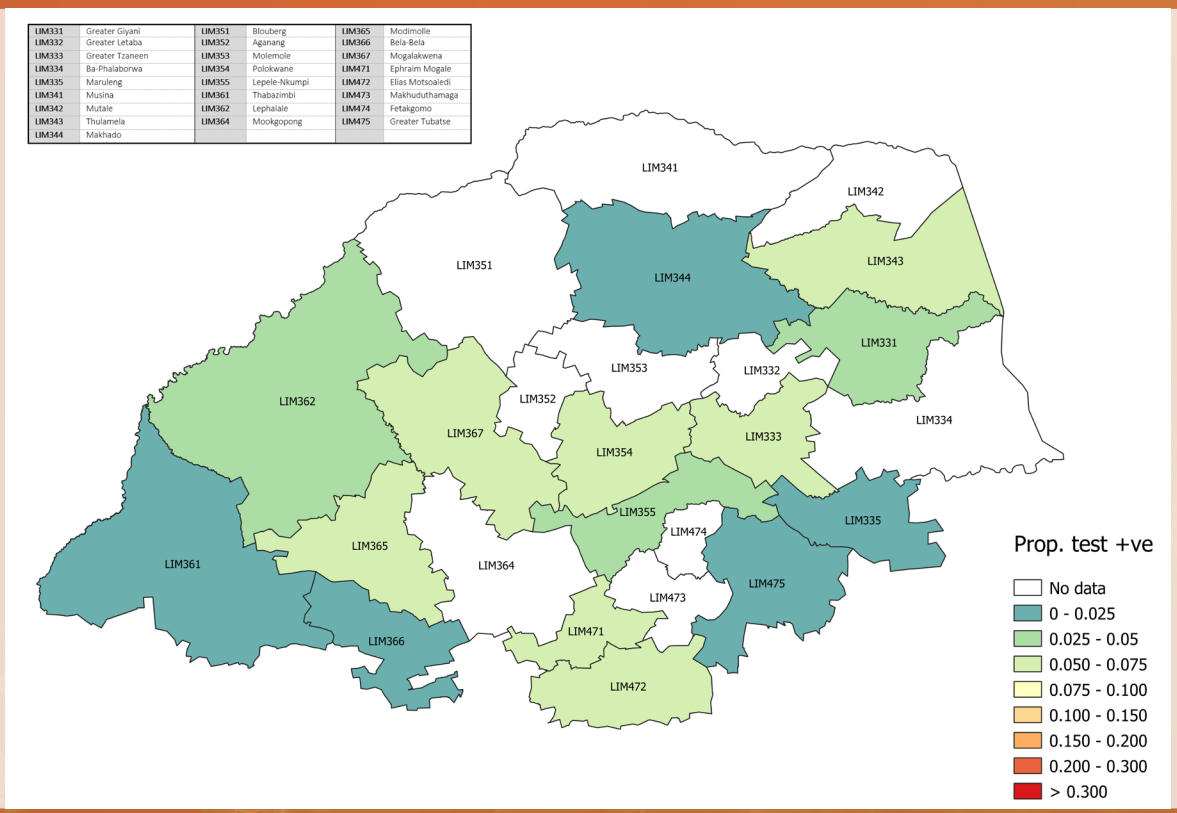

Figure 15. Proportion testing positive by health sub-district in Limpopo Province for the week of 19-25 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

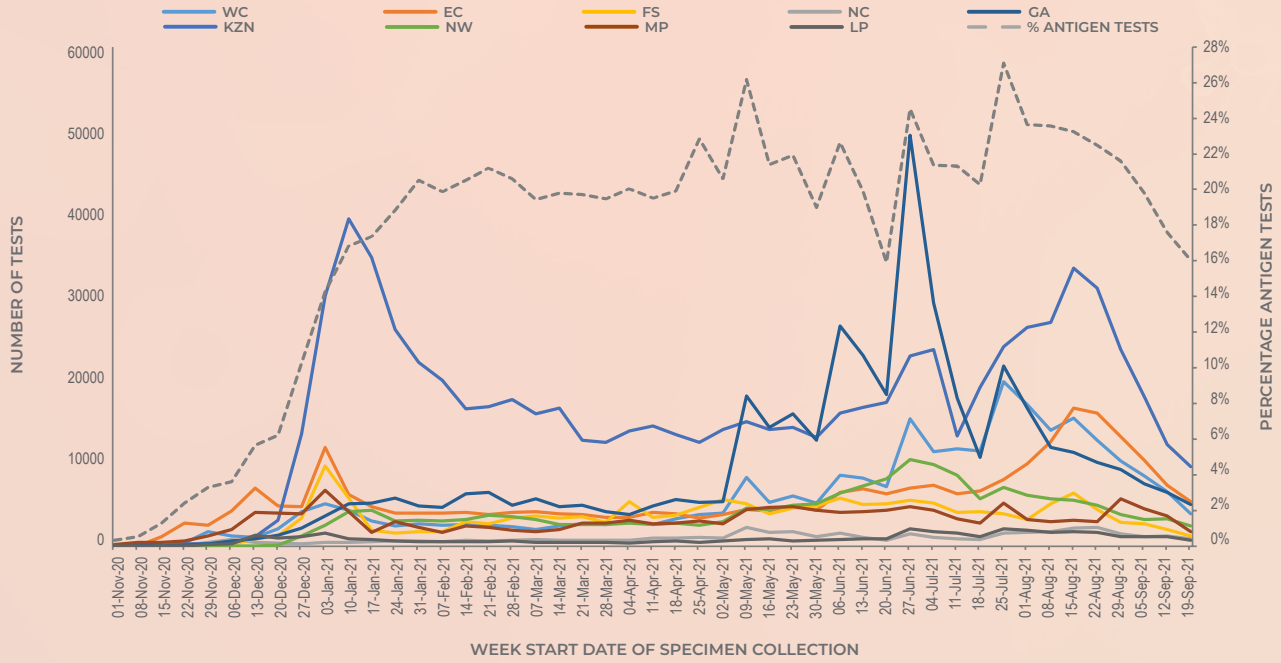

Figure 16. Number of antigen tests by province and overall percentage antigen tests, South Africa, 1 November 2020 – 25 September 2021. WC Western Cape; EC Eastern Cape; FS Free State; KZN KwaZulu-Natal; GA Gauteng; NC Northern Cape; NW North West; MP Mpumalanga; LP Limpopo

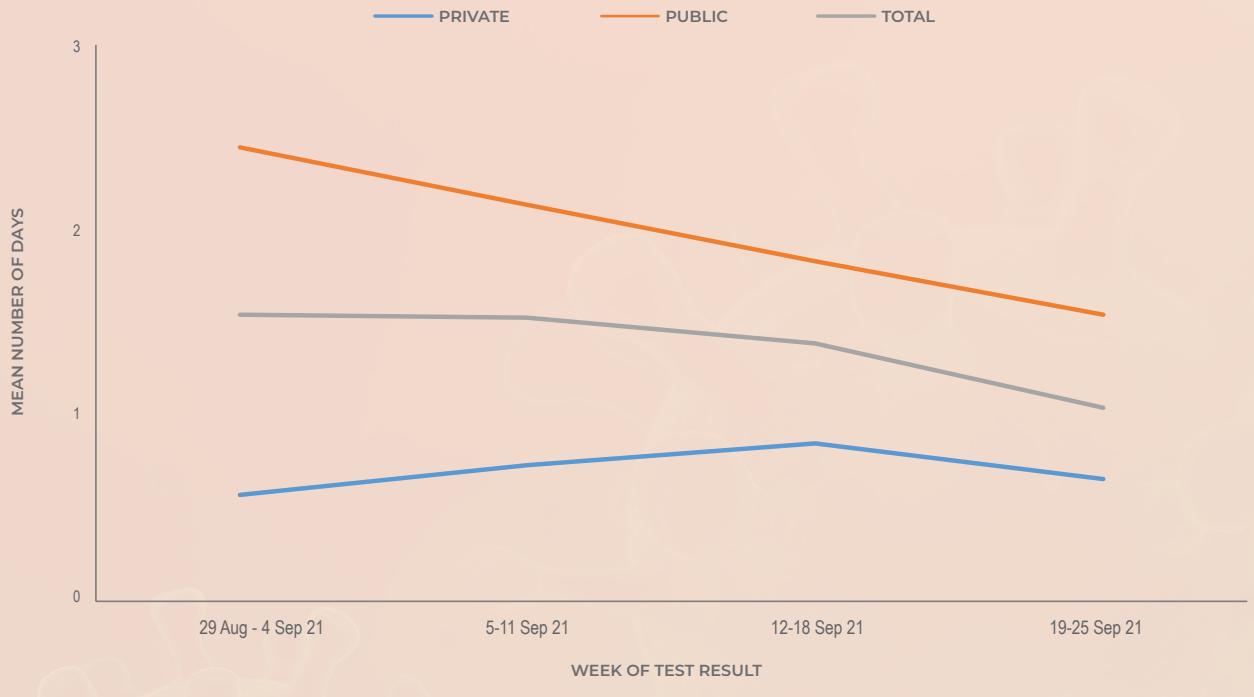

Figure 17. Mean number of days between date of specimen collection and date of test result for PCR tests by week of test result, South Africa, 29 August – 25 September 2021

*Excluding Ampath Laboratories

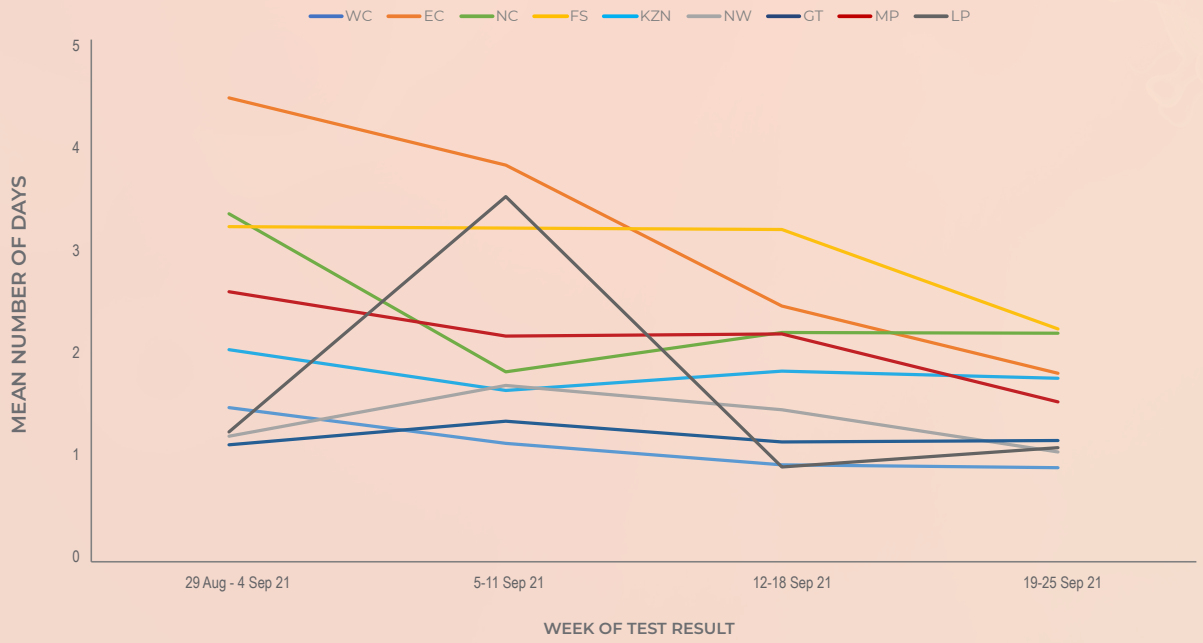

Figure 18. Mean number of days between date of specimen collection and date of test result for PCR tests in the public sector by week of test result and province, South Africa, 29 August – 25 September 2021. WC Western Cape; EC Eastern Cape; FS Free State; KZN KwaZulu-Natal; GT Gauteng; NC Northern Cape; NW North West; MP Mpumalanga; LP Limpopo

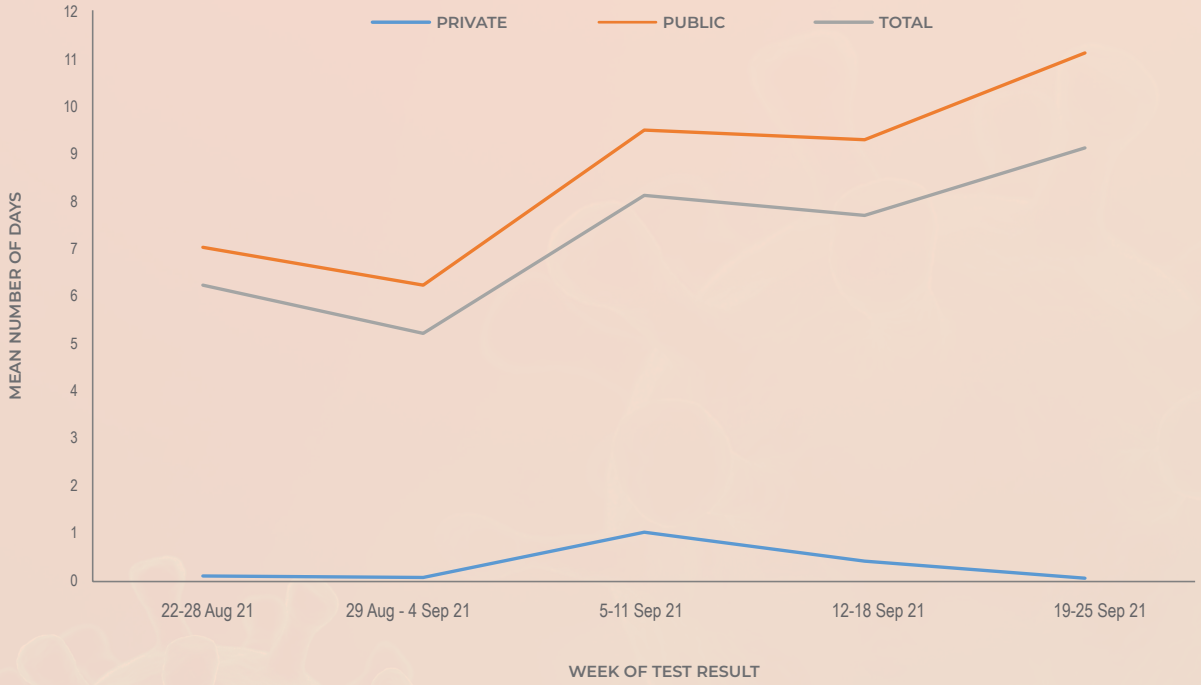

Figure 19. Mean number of days between date of specimen collection and date of test result for antigen tests by week of test result, South Africa, 22 August – 25 September 2021

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 (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. 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, 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 (almost every public sector facility in the country) and private (approximately 84% of private testing facilities) 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. Districts with fewer than 20 tests reported during the week have been excluded from the analysis.

Limitations

- A backlog in testing of samples by laboratories affects the reported number of tests. 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, PCR vs. antigen-based tests or prioritisation of severe or at-risk cases during epidemic waves) used by different provinces makes percentage testing positive and number of reported tests 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.