SOUTH AFRICA WEEK 48 2021

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 4 December 2021 (Week 48 of 2021).

HIGHLIGHTS

- The number of tests reported in week 48 of 2021 (n=329,722) was higher than the number of tests reported since end August 2021.
- In week 48 the testing rate was highest in Gauteng (1080 per 100,000 persons) and lowest in Limpopo (147 per 100,000 persons).
- In week 48 the percentage testing positive was 24.9%, which was 16.4% higher than the previous week.
- In week 48 compared to the previous week, the percentage testing positive increased in all provinces.
- The percentage testing positive in week 48 was highest in Gauteng (35.0%), followed by Limpopo (32.7%), Mpumalanga (26.9%) and North West (26.0%) provinces. The percentage testing positive was between 10 15% in the Free State, Western Cape and Kwa-Zulu Natal and was less than 10% in the Eastern Cape and Northern Cape provinces.

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Executive Summary:

- In the period 1 March 2020 through 4 December 2021, 19,648,014 tests for SARS-CoV-2 have been reported nationally: 16,792,464 PCR and 2,855,550 antigen tests.
- The number of tests reported in week 48 of 2021 (n=329,722: 261,104 PCR and 68,618 antigen tests) was higher than the number of tests reported since end August 2021.
- Gauteng reported the largest proportion of tests (50.7%), followed by KwaZulu-Natal (13.2%) and Western Cape (13.0%).
- The overall testing rate increased from 360 per 100,000 persons in week 47 to 553 per 100,000 persons in week 48.
- In week 48 the testing rate increased in all provinces, and most notably in Gauteng (575 per 100 000 in week 47 to 1080 per 100,000 in week 48). The testing rate was highest in Gauteng (1080 per 100,000 persons) and lowest in Limpopo (147 per 100,000 persons).
- The testing rate in week 48 was highest in the 50-54 years age group (867 per 100,000 persons).
- In week 48 the percentage testing positive was 24.9%, which was 16.4% higher than the previous week (P<0.001), and the largest weekly increase observed since the start of the epidemic.
- In the past week, the percentage testing positive increased by 13.7 % in the public sector (9.7% in week 47 to 23.4% in week 48, P<0.001) and by 18.0% in the private sector (7.7% in week 47 to 25.7% in week 48, P<0.001).
- In week 48, compared to the previous week, the percentage testing positive increased in all provinces with increases greater than 20% observed in Mpumalanga and Limpopo provinces.

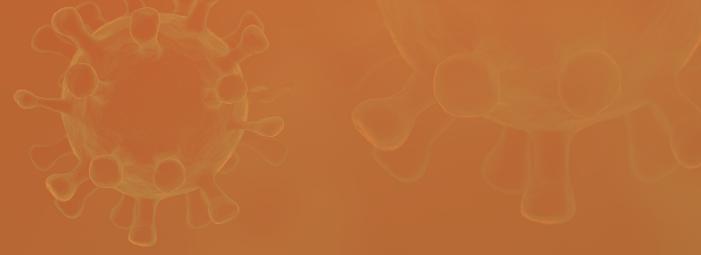
- The percentage testing positive in week 48 was highest in Gauteng (35.0%), followed by Limpopo (32.7%), Mpumalanga (26.9%) and North West (26.0%) provinces. The percentage testing positive was between 10 15% in the Free State, Western Cape and Kwa-Zulu Natal and was less than 10% in the Eastern Cape and Northern Cape provinces.
- The highest percentage testing positive was observed in the age group 10-14 years (34.9%).
- Health sub-districts showing the highest percentage testing positive were concentrated in Gauteng (n=11), followed by Mpumalanga (n=6) and Limpopo (n=5) in the past week.
- Antigen tests accounted for 20.8% (68,618/ 329,722) of tests reported in week 48, however the number of antigen tests is likely underestimated due to under-reporting and delayed reporting of antigen tests.
- In week 48 the public sector accounted for 67.8% of antigen tests reported. The majority of antigen tests have been reported from KwaZulu-Natal (31.8%) and Gauteng (20.3%) provinces with an increase in antigen tests observed in Gauteng in the past week.
- The mean turnaround time for PCR tests reported in week 48 was 0.9 days; 1.2 days in the public sector and 0.7 days in the private sector. Turnaround times for public sector PCR tests increased in Gauteng Province in the past week and were <2 days in all provinces.
- The mean turnaround time for antigen tests reported in week 48 was 5.9 days in the public sector and 0.0 days in the private sector.

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DATE OF SPECIMEN COLLECTION

Figure 1. Number of SARS-CoV-2 tests reported by date of specimen collection, South Africa, 1 March 2020 – 4 December 2021. Blue line shows the 7-day moving average of the number of tests reported. Grey bars highlight weekend days and public holidays

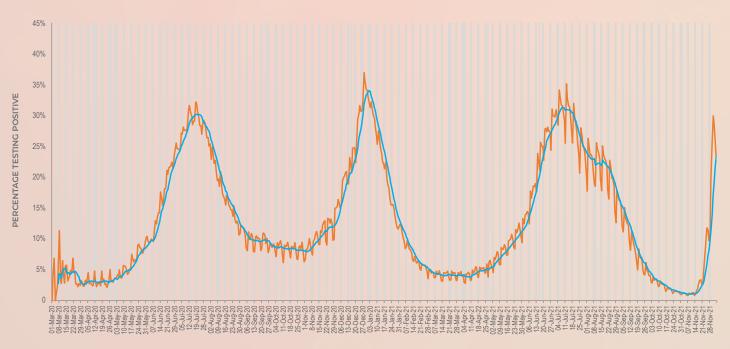


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Table 1. Weekly number of SARS-CoV-2 tests and positive tests reported, South Africa, 3 January – 4 December 2021

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)		
1	03-Jan-21	501289 (2.6)	151047	30.1		
2	10-Jan-21	418040 (2.1)	104804	25.1		
3	17-Jan-21	327469 (1.7)	63266	19.3		
4	24-Jan-21	249587 (1.3)	34643	13.9		
5	31-Jan-21	203748 (1.0)	22368	11.0		
6	07-Feb-21	193308 (1.0)	16471	8.5		
7	14-Feb-21	190665 (1.0)	12186	6.4		
8	21-Feb-21	184704 (0.9)	10385	5.6		
9	28-Feb-21	189709 (1.0)	8689	4.6		
10	07-Mar-21	193438 (1.0)	8337	4.3		
11	14-Mar-21	185518 (0.9)	8153	4.4		
12	21-Mar-21	173264 (0.9)	7353	4.2		
13	28-Mar-21	163955 (0.8)	7062	4.3		
14	04-Apr-21	180860 (0.9)	7290	4.0		
15	11-Apr-21	185326 (0.9)	8844	4.8		
16	18-Apr-21	184891 (0.9)	9467	5.1		
17	25-Apr-21	159996 (0.8)	9180	5.7		
18	02-May-21	193925 (1.0)	13459	6.9		
19	09-May-21	240218 (1.2)	19935	8.3		
20	16-May-21	248477 (1.3)	24212	9.7		
21	23-May-21	262569 (1.3)	29773	11.3		
22	30-May-21	270248 (1.4)	36101	13.4		
23	06-Jun-21	337771 (1.7)	59444	17.6		
24	13-Jun-21	370444 (1.9)	87937	23.7		
25	20-Jun-21	432029 (2.2)	118487	27.4		
26	27-Jun-21	489552 (2.5)	146530	29.9		
27	04-Jul-21	443539 (2.3)	141374	31.9		
28	11-Jul-21	320411 (1.6)	100867	31.5		
29	18-Jul-21	312717 (1.6)	88338	28.2		
30	25-Jul-21	350060 (1.8)	88210	25.2		
31	01-Aug-21	370717 (1.9)	87972	23.7		
32	08-Aug-21	358025 (1.8)	83247	23.3		
33	15-Aug-21	420072 (2.1)	95218	22.7		
34	22-Aug-21	390264 (2.0)	78048	20.0		
35	29-Aug-21	343530 (1.7)		16.0		
36	05-Sep-21	298992 (1.5)	38748	13.0		
37	12-Sep-21	258710 (1.3)	23958	9.3		
38	19-Sep-21	207138 (1.1)	13968	6.7		
39		205391 (1.0)	9452	4.6		
40	03-Oct-21	193454 (1.0)	6423	3.3		
4]	10-Oct-21	189073 (1.0)	4986	26		
42	17-Oct-21	184128 (0.9)	3391	1.8		
43	24-Oct-21	174095 (0.9)	2541	1.5		
<u> </u>	31-Oct-21	178696 (0.9)	2050	1.3 1.1		
45	07-Nov-21	191653 (1.0)	20302226	1.2		
46	14-Nov-21	191033 (1.0)	4728	2.5		
40	21-Nov-21	214956 (1.1)	18355	<u>2.5</u>		
	21-N0V-21 28-Nov-21	329722 (1.7)	82097			
48						

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DATE OF SPECIMEN COLLECTION

Figure 2. Percentage of tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March 2020 – 4 December 2021. Blue line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

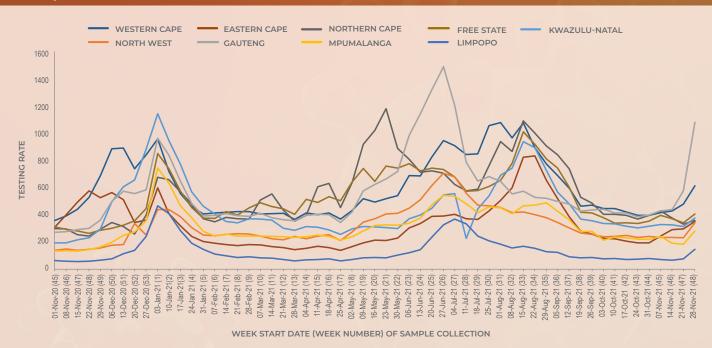


Figure 3. Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 1 November 2020 – 4 December 2021

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Table 2. Weekly number of tests and positive tests reported by province, South Africa, 14 November – 4 December 2021

		14-2	0 Nov 2021	21-27	Nov 2021	28 Nov	- 4 Dec 2021	- 92	
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	29880	339 (1.1)	33394	905 (2.7)	42947	5355 (12.5)	613	9.8%
Eastern Cape	6734001	19605	139 (0.7)	19828	200 (1.0)	23546	1341 (5.7)	350	4.7%
Northern Cape	1292786	4838	166 (3.4)	4269	187 (4.4)	4619	453 (9.8)	357	5.4%
Free State	2928903	10847	124 (1.1)	9952	242 (2.4)	11883	1659 (14.0)	406	11.5%
KwaZulu-Natal	11531628	37492	297 (0.8)	35951	623 (1.7)	43410	4727 (10.9)	376	9.2%
North West	4108816	9541	225 (2.4)	9423	757 (8.0)	14027	3652 (26.0)	341	18.0%
Gauteng	15488137	67766	3180 (4.7)	89020	14479 (16.3)	167321	58578 (35.0)	1080	18.7%
Mpumalanga	4679786	8937	177 (2.0)	8627	499 (5.8)	13096	3520 (26.9)	280	21.1%
Limpopo	5852553	3812	81 (2.1)	4458	461 (10.3)	8591	2809 (32.7)	147	22.4%
Unknown		5	0 (0.0)	34	2 (5.9)	282	3 (1.1)		
Total	59622350	192723	4728 (2.5)	214956	18355 (8.5)	329722	82097 (24.9)	553	16.4%

a 2020 Mid-year population Statistics SA

b Current week compared to previous week



Figure 4. Weekly percentage testing positive by province, South Africa, 14 November – 4 December 2021. The horizontal blue line shows the national mean for week 48, beginning 28 November 2021

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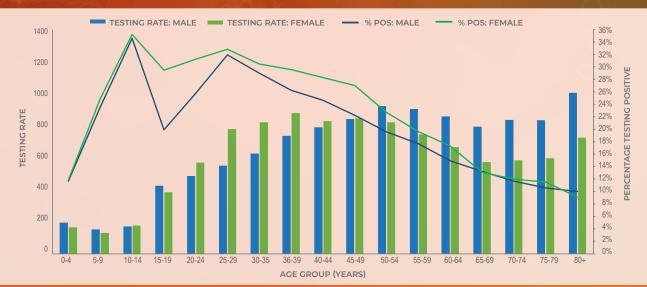


Figure 5. Testing rates per 100,000 persons and percentage testing positive by age group and sex, South Africa, week 48, 28 November – 4 December 2021

 Table 3.
 Health sub-districts with the highest proportion testing positive based on public and private sector data for the week of 28 November – 4 December 2021

Health district or sub-district	Province	PTP (95% CI)	Previous week
Mookgopong	Limpopo	0.780 (0.665-0.894)	
Tshwane 5	Gauteng	0.659 (0.613-0.704)	0.511 (0.452-0.569)
Moretele	North West	0.605 (0.518-0.693)	0.421 (0.331-0.511)
Dr JS Moroka	Mpumalanga	0.585 (0.528-0.641)	0.241 (0.168-0.314)
Tshwane 1	Gauteng	0.567 (0.553-0.580)	0.357 (0.341-0.373)
Tshwane 7	Gauteng	0.550 (0.502-0.599)	0.327 (0.262-0.391)
Victor Khanye	Mpumalanga	0.539 (0.440-0.638)	
Thulamela	Limpopo	0.518 (0.465-0.570)	0.080 (0.034-0.125)
Lepele-Nkumpi	Limpopo	0.487 (0.414-0.559)	0.149 (0.069-0.228)
Phokwane	Northern Cape	0.485 (0.361-0.609)	0.050 (0.000-0.119)
Johannesburg G	Gauteng	0.461 (0.440-0.481)	0.104 (0.087-0.122)
Thembisile	Mpumalanga	0.460 (0.408-0.512)	0.253 (0.192-0.314)
Lephalale	Limpopo	0.454 (0.427-0.480)	0.211 (0.176-0.245)
Tshwane 2	Gauteng	0.447 (0.429-0.466)	0.277 (0.256-0.297)
Tshwane 3	Gauteng	0.435 (0.427-0.444)	0.294 (0.284-0.304)
Randfontein	Gauteng	0.416 (0.385-0.446)	0.205 (0.171-0.240)
Tshwane 4	Gauteng	0.414 (0.401-0.427)	0.219 (0.202-0.236)
Emalahleni (MP)	Mpumalanga	0.412 (0.388-0.436)	0.106 (0.086-0.126)
Emfuleni	Gauteng	0.406 (0.392-0.420)	0.116 (0.103-0.129)
Tshwane 6	Gauteng	0.391 (0.380-0.402)	0.220 (0.207-0.232)
Steve Tshwete	Mpumalanga	0.389 (0.365-0.413)	0.085 (0.067-0.103)
Aganang	Limpopo	0.379 (0.262-0.495)	
Nketoana	Free State	0.375 (0.262-0.487)	0.020 (0.000-0.060)
Emakhazeni	Mpumalanga	0.375 (0.261-0.488)	0.072 (0.003-0.141)
Johannesburg D	Gauteng	0.374 (0.360-0.388)	0.106 (0.095-0.116)

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 marked in and CIs that do not overlap with, the previous week proportions and CIs.

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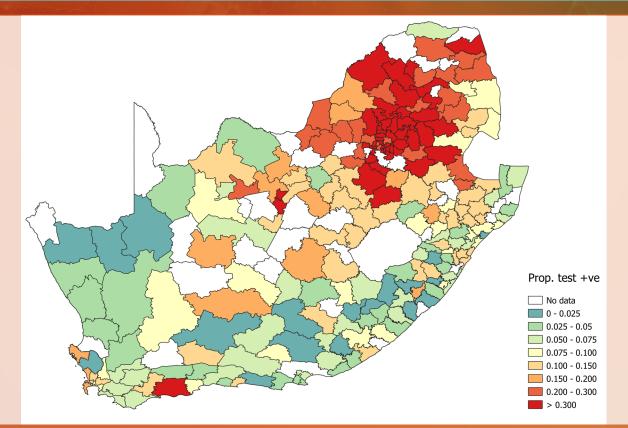


Figure 6. Proportion testing positive by health sub-district in South Africa for the week of 28 November – 4 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

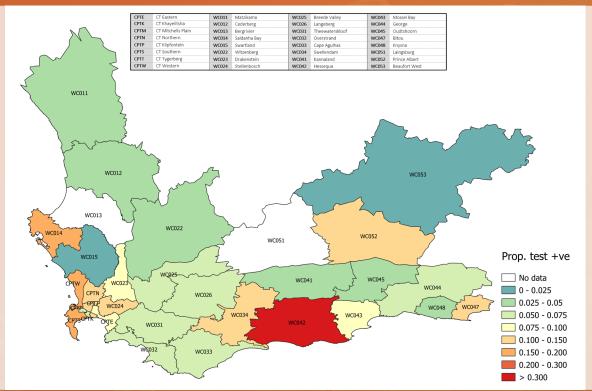


Figure 7. Proportion testing positive by health sub-district in the Western Cape Province for the week of 28 November – 4 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%

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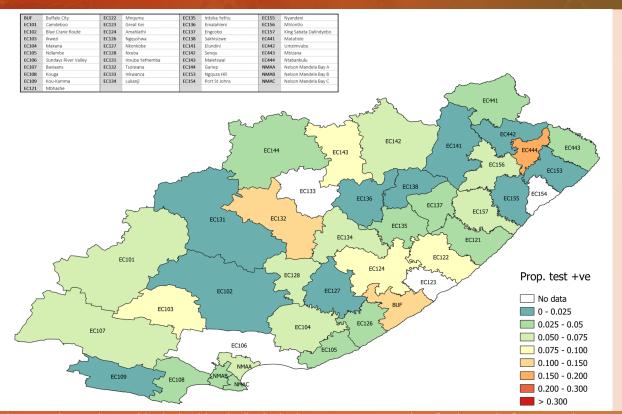


Figure 8. Proportion testing positive by health sub-district in the Eastern Cape Province for the week of 28 November – 4 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

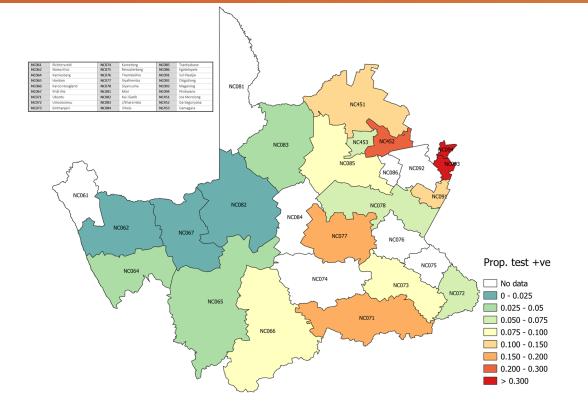


Figure 9. Proportion testing positive by health sub-district in Northern Cape Province for the week of 28 November – 4 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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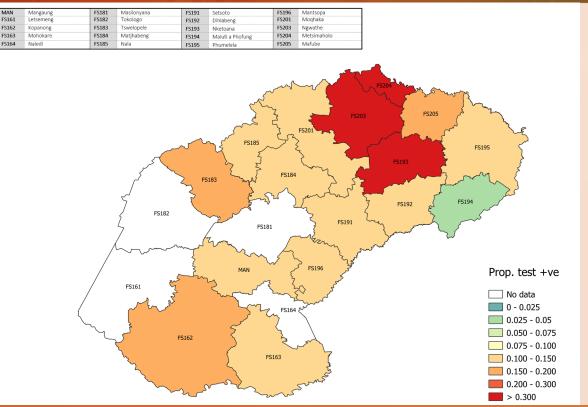


Figure 10. Proportion testing positive by health sub-district in Free State Province for the week of 28 November – 4 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

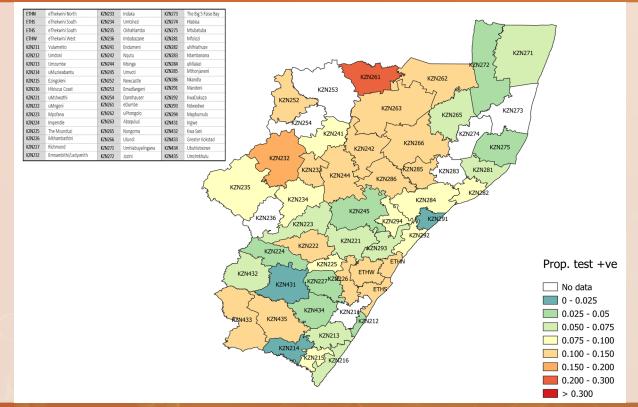


Figure 11. Proportion testing positive by health sub-district in KwaZulu-Natal Province for the week of 28 November – 4 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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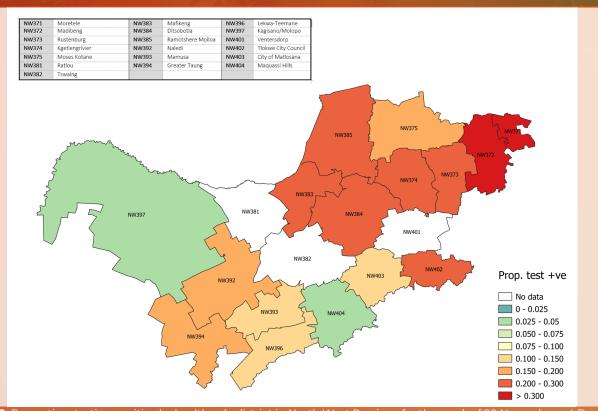


Figure 12. Proportion testing positive by health sub-district in North West Province for the week of 28 November – 4 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

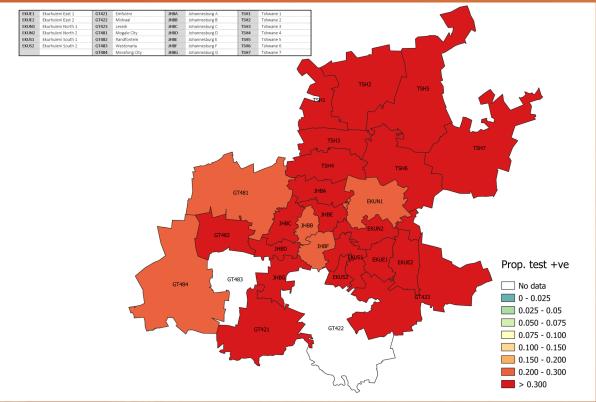


Figure 13. Proportion testing positive by health sub-district in Gauteng Province for the week of 28 November – 4 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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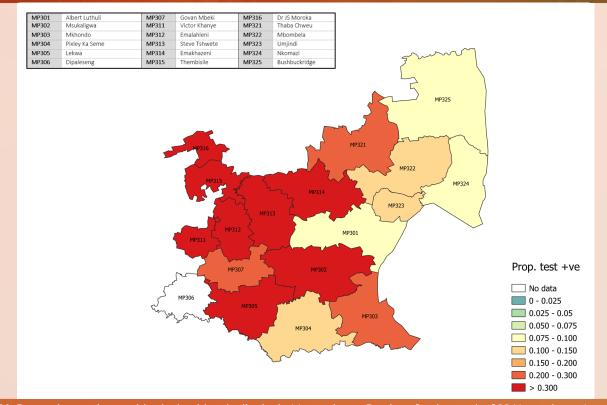


Figure 14. Proportion testing positive by health sub-district in Mpumalanga Province for the week of 28 November – 4 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

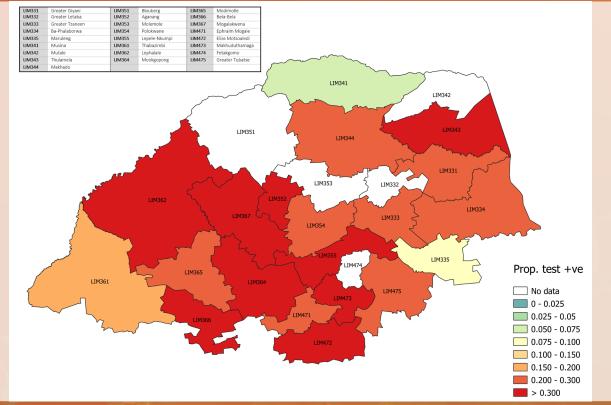


Figure 15. Proportion testing positive by health sub-district in Limpopo Province for the week of 28 November – 4 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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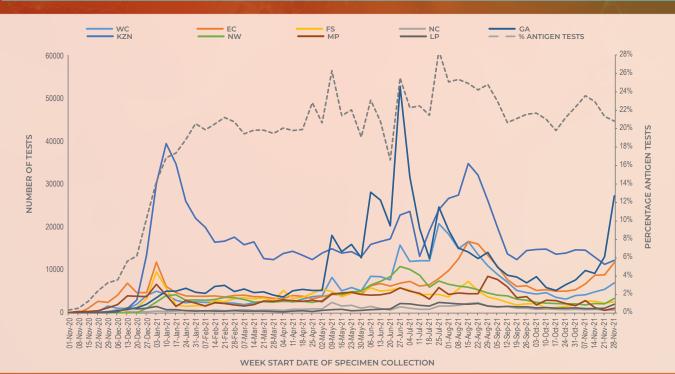


Figure 16. Number of antigen tests by province and overall percentage antigen tests, South Africa, 1 November 2020 – 4 December 2021. WC Western Cape; EC Eastern Cape; FS Free State; KZN KwaZulu-Natal; GA Gauteng; NC Northern Cape; NW North West; MP Mpumalanga; LP Limpopo



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, 7 November – 4 December 2021

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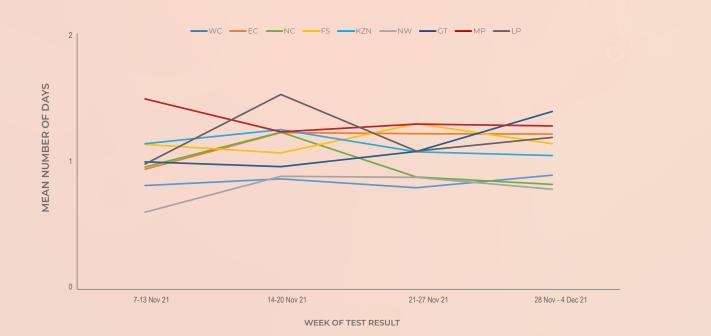


Figure 18. Mean number of days between date of specimen collection and date of test result for PCR tests in the public sector by week of test result and province, South Africa, 7 November – 4 December 2021. WC Western Cape; EC Eastern Cape; FS Free State; KZN KwaZulu-Natal; GT Gauteng; NC Northern Cape; NW North West; MP Mpumalanga; LP Limpopo

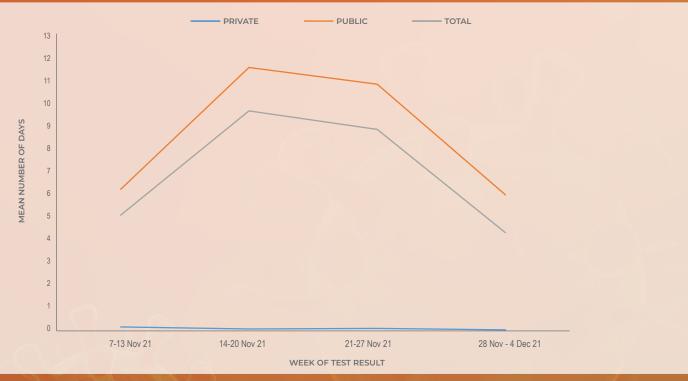


Figure 19. Mean number of days between date of specimen collection and date of test result for antigen tests by week of test result, South Africa, 7 November – 4 December 2021

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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 (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 80% 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. antigenbased 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.