SOUTH AFRICA WEEK 49 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 11 December 2021 (Week 49 of 2021).

HIGHLIGHTS

- The number of tests reported in week 49 of 2021 (n=437,818) was higher than the number of tests reported since early July 2021.
- In week 49 the testing rate was highest in Gauteng (1264 per 100,000 persons) and lowest in Limpopo (226 per 100,000 persons).
- In week 49 the percentage testing positive was 35.5%, which was 9.4% higher than the previous week.
- In week 49 compared to the previous week, the percentage testing positive increased in all provinces.
- The percentage testing positive in week 49 was highest in the North West Province (44.3%), followed by Limpopo (43.8%) and Mpumalanga (41.5%) provinces. The percentage testing positive was between 30 – 40% in Gauteng, Free State and Kwa-Zulu Natal, and was less than 30% in the Western Cape, Eastern Cape and Northern Cape provinces.

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Executive Summary:

- In the period 1 March 2020 through 11 December 2021, 20,129,595 tests for SARS-CoV-2 have been reported nationally: 17,149,571 PCR and 2,980,024 antigen tests.
- The number of tests reported in week 49 of 2021 (n=437,818: 339,611 PCR and 98,207 antigen tests) was higher than the number of tests reported since early July 2021.
- Gauteng reported the largest proportion of tests (44.7%), followed by KwaZulu-Natal (16.7%) and Western Cape (13.8%).
- The overall testing rate increased from 616 per 100,000 persons in week 48 to 734 per 100,000 persons in week 49.
- In week 49 the testing rate increased in all provinces, and most notably in the Western Cape (660 per 100 000 in week 48 to 860 per 100,000 in week 49). The testing rate was highest in Gauteng (1264 per 100,000 persons) and lowest in Limpopo (226 per 100,000 persons).
- The testing rate in week 49 was highest in the 50-54 years age group (1181 per 100,000 persons).
- In week 49 the percentage testing positive was 35.5%, which was 9.4% higher than the previous week (P<0.001).
- In the past week, the percentage testing positive increased by 11.4% in the public sector (26.6% in week 48 to 38.0% in week 49, P<0.001) and by 8.1% in the private sector (25.7% in week 48 to 33.8% in week 49, P<0.001).
- In week 49, compared to the previous week, the percentage testing positive increased in all provinces, with increases greater than 20% observed in the Free State and KwaZulu-Natal provinces.

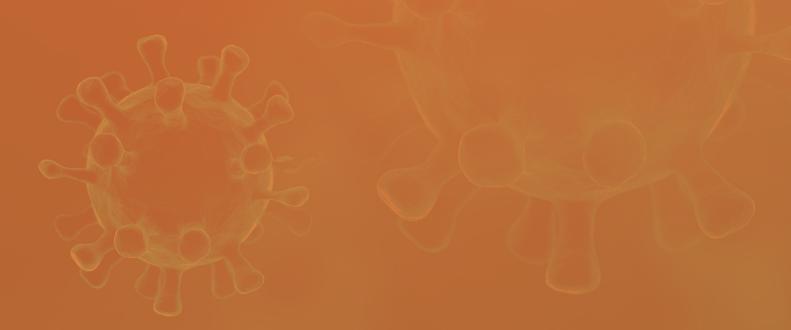
- The percentage testing positive in week 49 was highest in the North West Province (44.3%), followed by Limpopo (43.8%) and Mpumalanga (41.5%) provinces. The percentage testing positive was between 30 – 40% in Gauteng, Free State and Kwa-Zulu Natal, and was less than 30% in the Western Cape, Eastern Cape and Northern Cape provinces.
- The highest percentage testing positive was observed in the age groups 10-14 years (40.3%) and 25-29 years (40.2%).
- Health sub-districts showing the highest percentage testing positive were concentrated in Mpumalanga (n=6), followed by Gauteng (n=5) and North West (n=5) in the past week.
- Antigen tests accounted for 22.4% (98,207/ 437,818) of tests reported in week 49, however the number of antigen tests is likely underestimated due to under-reporting and delayed reporting of antigen tests.
- In week 49 the public sector accounted for 70.7% of antigen tests reported. The majority of antigen tests have been reported from KwaZulu-Natal (31.8%) and Gauteng (20.3%) provinces. A slight decrease in reported antigen tests was observed in Gauteng in the past week, and notable increases were observed in the Western Cape and KwaZulu-Natal provinces.
- The mean turnaround time for PCR tests reported in week 49 was 1.0 days; 1.9 days in the public sector and 0.7 days in the private sector. Turnaround times for public sector PCR tests increased in all provinces in the past week and were >2 days in Gauteng.
- The mean turnaround time for antigen tests reported in week 49 was 3.4 days in the public sector and 0.2 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 – 11 December 2021. Blue line shows the 7-day moving average of the number of tests reported. Grey bars highlight weekend days and public holidays

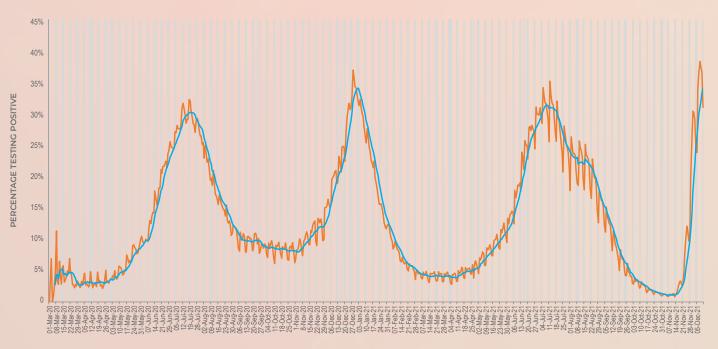


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Table 1. Weekly number of SARS-CoV-2 tests and positive tests reported, South Africa, 3 January – 11 December 2021

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)
1	03-Jan-21	501298 (2.5)	151048	30.1
2	10-Jan-21	418042 (2.1)	104804	25.1
3	17-Jan-21	327469 (1.6)	63266	19.3
4	24-Jan-21	249588 (1.2)	34643	13.9
5	31-Jan-21	203755 (1.0)	22370	11.0
6	07-Feb-21	193312 (1.0)	16472	8.5
7	14-Feb-21	190667 (0.9)	12187	6.4
8	21-Feb-21	184705 (0.9)	10385	5.6
9	28-Feb-21	189711 (0.9)	8691	4.6
10	07-Mar-21	193440 (1.0)	8339	4.3
11	14-Mar-21	185519 (0.9)	8153	4.4
12	21-Mar-21	173266 (0.9)	7354	4.2
13	28-Mar-21	163966 (0.8)	7062	4.3
14	04-Apr-21	180868 (0.9)	7291	4.0
15	11-Apr-21	185327 (0.9)	8845	4.8
16	18-Apr-21	184892 (0.9)	9468	5.1
17	25-Apr-21	159996 (0.8)	9180	5.7
18	02-May-21	193926 (1.0)	13459	6.9
19	09-May-21	240268 (1.2)	19935	8.3
20	16-May-21	248478 (1.2)	24212	9.7
21	23-May-21	262569 (1.3)	29773	11.3
22	30-May-21	270249 (1.3)	36102	13.4
23	06-Jun-21	337776 (1.7)	59445	17.6
2324	13-Jun-21	370444 (1.8)	87937	23.7
25	20-Jun-21	432030 (2.1)	118488	27.4
2526	27-Jun-21	489586 (2.4)	146543	29.9
2327	04-Jul-21	443551 (2.2)	141381	31.9
28	11-Jul-21	320431 (1.6)	100881	31.5
2029	18-Jul-21	312749 (1.6)	88357	28.3
30	25-Jul-21	350079 (1.7)	88217	25.2
3031	01-Aug-21	370752 (1.8)	87991	23.7
32	08-Aug-21	358052 (1.8)	83254	23.3
33	15-Aug-21	420109 (2.1)	95233	23.5
34			78056	20.0
35		390297 (1.9)	54975	20.0 16.0
<u></u>	29-Aug-21 05-Sep-21	343573 (1.7)		13.0
		299027 (1.5)	38760	
37	<u>12-Sep-21</u>	258751 (1.3)	23972	9.3
38	<u>19-Sep-21</u>	207282 (1.0)	13973	6.7
39	<u>26-Sep-21</u>	205493 (1.0)	9455	4.6
40	03-Oct-21	195014 (1.0)	6430	3.3
41	<u>10-Oct-21</u>	189323 (0.9)	4998	2.6
42	<u>17-Oct-21</u>	<u>184175 (0.9)</u>	3393	1.8
43	<u>24-Oct-21</u>	174190 (0.9)	2545	1.5
44	<u> </u>	178918 (0.9)	2079	1.2
45	07-Nov-21	192115 (1.0)	2263	1.2
46	14-Nov-21	193761 (1.0)	4741	2.4
47	21-Nov-21	216915 (1.1)	18775	8.7
48	28-Nov-21	367113 (1.8)	95639	26.1
49	05-Dec-21	437818 (2.2)	155232	35.5
	Total	20,129,595 (100.0)	3,410,973	

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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 – 11 December 2021. Blue line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

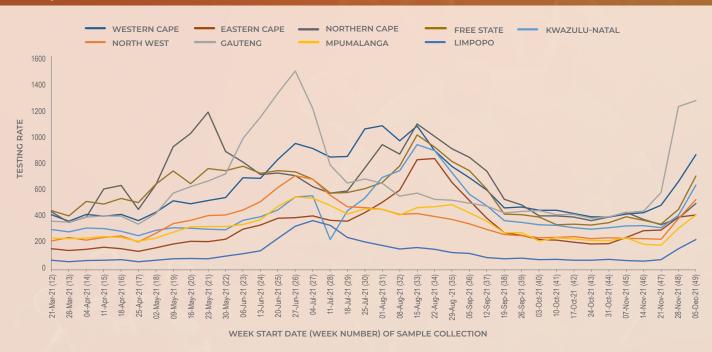


Figure 3. Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 21 March 2021 – 11 December 2021

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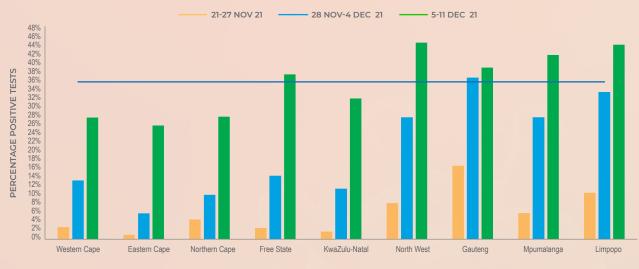
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Table 2. Weekly number of tests and positive tests reported by province, South Africa, 21 November – 11 December 2021

		21-27	7 Nov 2021	28 Nov	- 4 Dec 2021	5-11	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	33878	928 (2.7)	46253	6137 (13.3)	60270	16517 (27.4)	860	14.1%
Eastern Cape	6734001	20000	202 (1.0)	26608	1545 (5.8)	27591	7070 (25.6)	410	19.8%
Northern Cape	1292786	4356	193 (4.4)	4985	500 (10.0)	6409	1770 (27.6)	496	17.6%
Free State	2928903	10000	255 (2.6)	13227	1890 (14.3)	20548	7633 (37.1)	702	22.9%
KwaZulu-Natal	11531628	36437	631 (1.7)	47141	5382 (11.4)	73080	23159 (31.7)	634	20.3%
North West	4108816	9442	771 (8.2)	15741	4327 (27.5)	21583	9555 (44.3)	525	16.8%
Gauteng	15488137	89618	14811 (16.5)	189027	68772 (36.4)	195838	75739 (38.7)	1264	2.3%
Mpumalanga	4679786	8647	510 (5.9)	14527	3994 (27.5)	19235	7991 (41.5)	411	14.1%
Limpopo	5852553	4503	472 (10.5)	9314	3087 (33.1)	13207	5785 (43.8)	226	10.7%
Unknown		34	2 (5.9)	290	5 (1.7)	57	13 (22.8)		
Total	59622350	216915	18775 (8.7)	367113	95639 (26.1)	437818	155232 (35.5)	734	9.4%

a 2020 Mid-year population Statistics SA

b Current week compared to previous week



PROVINCE

Figure 4. Weekly percentage testing positive by province, South Africa, 21 November – 11 December 2021. The horizontal blue line shows the national mean for week 49, beginning 5 December 2021

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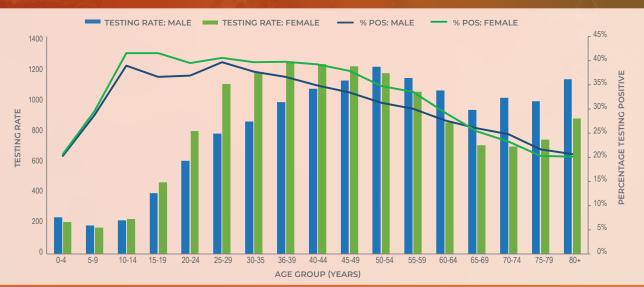


Figure 5. Testing rates per 100,000 persons and percentage testing positive by age group and sex, South Africa, week 49, 5 – 11 December 2021

Table 3. Health sub-districts with the highest proportion testing positive based on public and private sector data for the week of 5 - 11 December 2021

Health district or sub-district	Province	PTP (95% CI)	Previous week
Tswaing	North West	0.815 (0.671-0.960)	de setter d' <u>m</u> e de la tradicionada
Thembelihle	Northern Cape	0.752 (0.619-0.885)	
Greater Taung	North West	0.715 (0.620-0.809)	0.176 (0.071-0.282)
Letsemeng	Free State	0.706 (0.625-0.787)	0.634 (0.500-0.767)
Ratlou	North West	0.674 (0.527-0.820)	an an an an <mark>m</mark> ainte an an State
Victor Khanye	Mpumalanga	0.673 (0.585-0.760)	0.547 (0.452-0.641)
Ventersdorp	North West	0.658 (0.573-0.743)	0.491 (0.342-0.640)
Westonaria	Gauteng	0.653 (0.584-0.722)	0.438 (0.330-0.545)
Phokwane	Northern Cape	0.650 (0.569-0.731)	0.488 (0.364-0.611)
Dipaleseng	Mpumalanga	0.632 (0.517-0.746)	
Randfontein	Gauteng	0.622 (0.601-0.643)	0.606 (0.582-0.630)
Thembisile	Mpumalanga	0.621 (0.578-0.664)	0.468 (0.421-0.516)
Dr JS Moroka	Mpumalanga	0.614 (0.568-0.661)	0.565 (0.517-0.613)
Ramotshere Moiloa	North West	0.597 (0.541-0.653)	0.294 (0.231-0.358)
Tshwane 5	Gauteng	0.579 (0.545-0.613)	0.655 (0.617-0.692)
Mkhambathini	KwaZulu-Natal	0.574 (0.437-0.711)	0.112 (0.000-0.231)
Ngwathe	Free State	0.574 (0.502-0.645)	0.305 (0.190-0.421)
Lekwa	Mpumalanga	0.566 (0.519-0.613)	0.312 (0.259-0.365)
Emakhazeni	Mpumalanga	0.564 (0.481-0.646)	0.392 (0.286-0.498)
Tshwane 7	Gauteng	0.561 (0.521-0.600)	0.573 (0.530-0.616)
Lepele-Nkumpi	Limpopo	0.531 (0.470-0.592)	0.498 (0.426-0.570)
Moqhaka	Free State	0.524 (0.485-0.563)	0.146 (0.101-0.190)
Mogalakwena	Limpopo	0.520 (0.481-0.560)	0.370 (0.331-0.409)
Mthonjaneni	KwaZulu-Natal	0.516 (0.379-0.653)	0.096 (0.000-0.223)
Johannesburg G	Gauteng	0.515 (0.498-0.531)	0.480 (0.461-0.499)

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 blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive that are marked in blue have current week proportions testing positive testing positive testing positive

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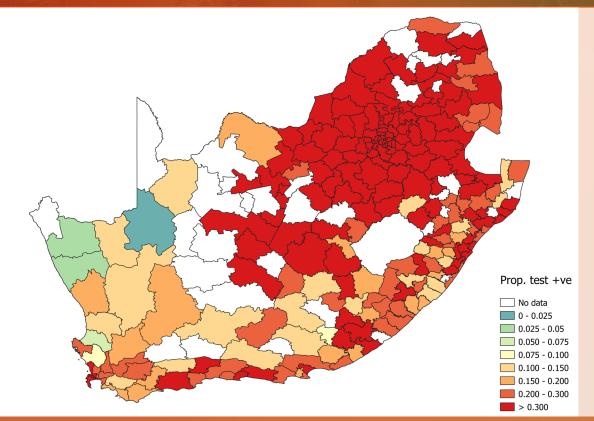


Figure 6. Proportion testing positive by health sub-district in South Africa for the week of 5-11 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

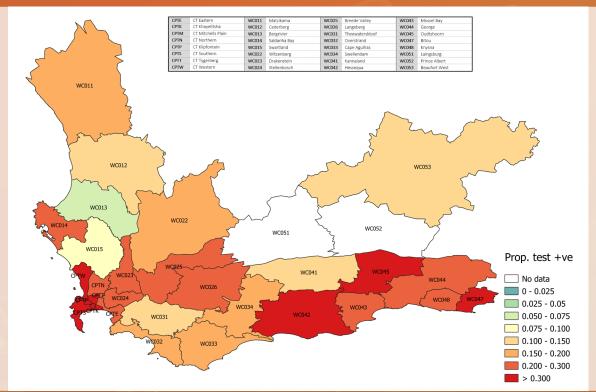


Figure 7. Proportion testing positive by health sub-district in the Western Cape Province for the week of 5 - 11 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%

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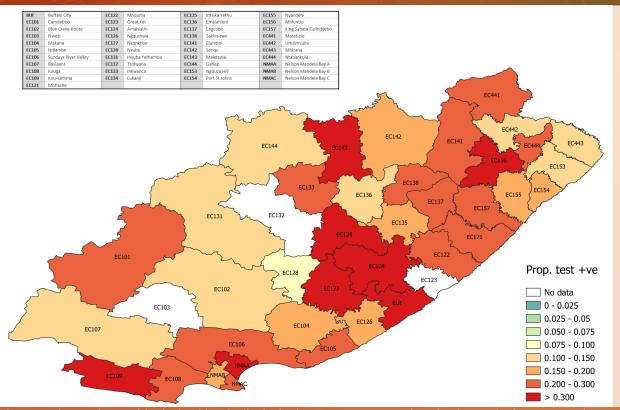


Figure 8. Proportion testing positive by health sub-district in the Eastern Cape Province for the week of 5 - 11 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

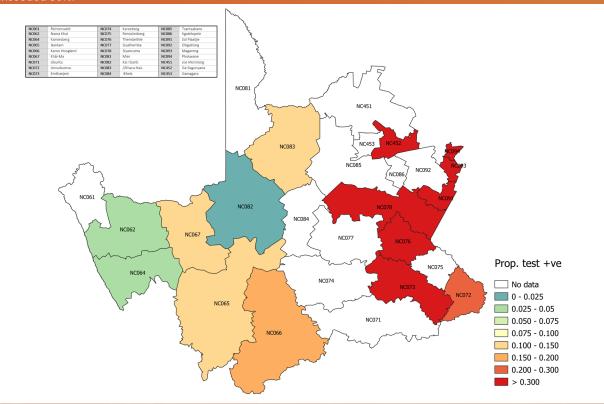


Figure 9. Proportion testing positive by health sub-district in Northern Cape Province for the week of 5 - 11 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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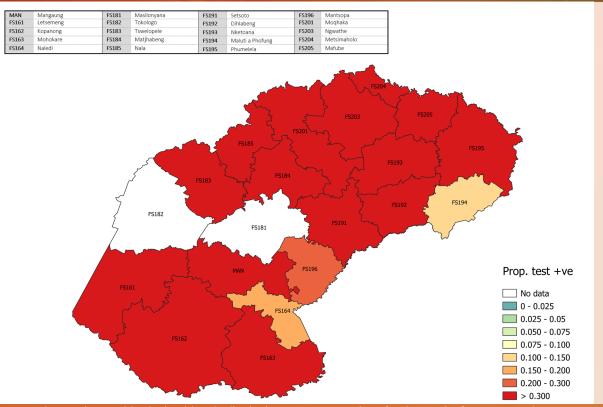


Figure 10. Proportion testing positive by health sub-district in Free State Province for the week of 5 - 11 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

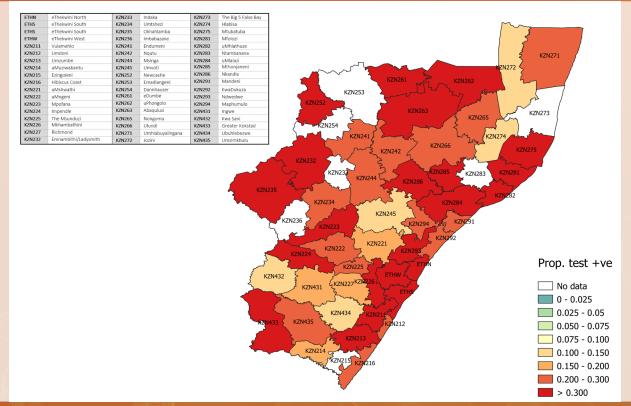


Figure 11. Proportion testing positive by health sub-district in KwaZulu-Natal Province for the week of 5 - 11 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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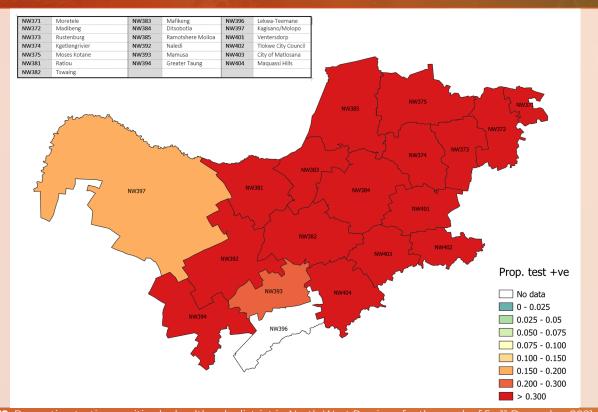


Figure 12. Proportion testing positive by health sub-district in North West Province for the week of 5 - 11 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

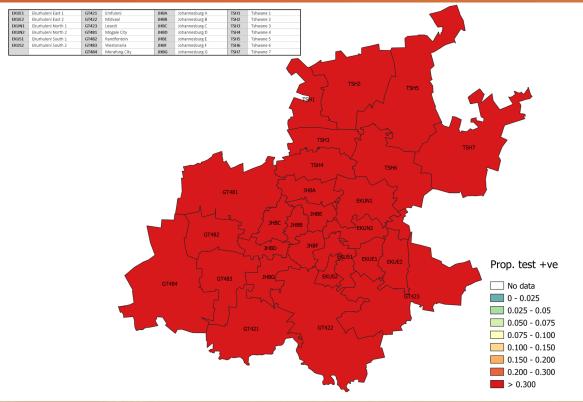


Figure 13. Proportion testing positive by health sub-district in Gauteng Province for the week of 5 - 11 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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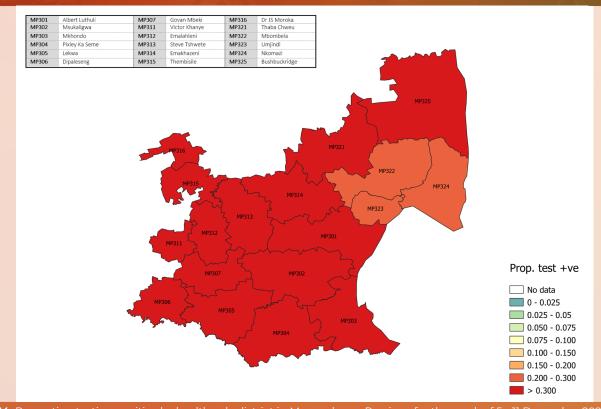


Figure 14. Proportion testing positive by health sub-district in Mpumalanga Province for the week of 5 - 11 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

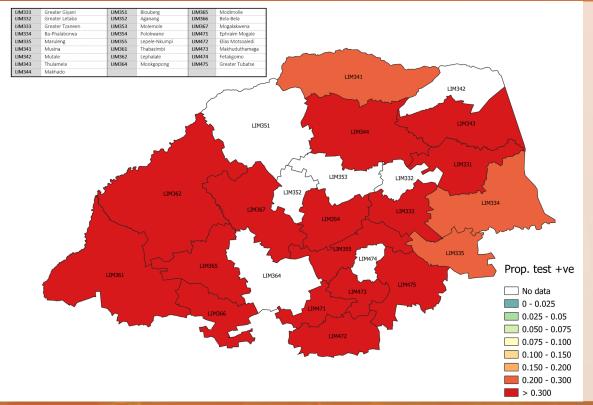


Figure 15. Proportion testing positive by health sub-district in Limpopo Province for the week of 5 - 11 December 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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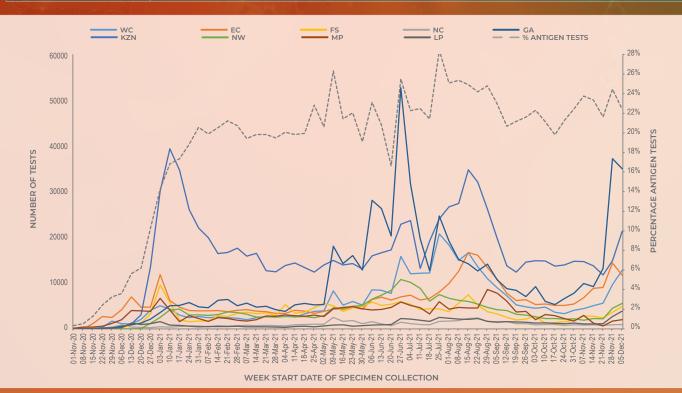
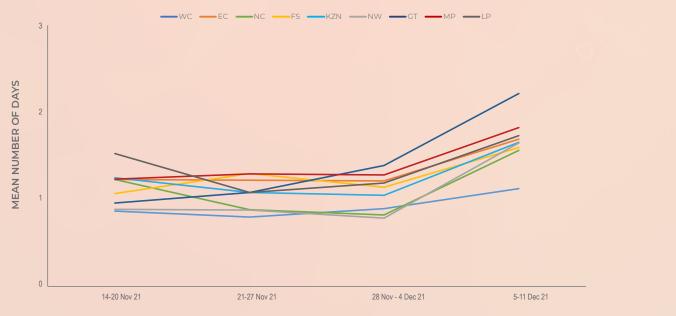


Figure 16. Number of antigen tests by province and overall percentage antigen tests, South Africa, 1 November 2020 – 11 December 2021. WC Western Cape; EC Eastern Cape; FS Free State; KZN KwaZulu-Natal; GA Gauteng; NC Northern Cape; NW North West; MP Mpumalanga; LP Limpopo



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, 14 November – 11 December 2021

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WEEK OF TEST RESULT

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, 14 November – 11 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, 14 November – 11 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 (approximately 93% of public sector facilities 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.