

COVID-19 TESTING SUMMARY



NATIONAL INSTITUTE FOR
COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 45 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 13 November 2021 (Week 45 of 2021).

HIGHLIGHTS

- The number of tests reported in week 45 of 2021 (n=179 696) was slightly higher than the number of tests reported in the previous week.
- In week 45 the testing rate was highest in Gauteng (413 per 100,000 persons) and lowest in Limpopo (65 per 100,000 persons).
- In week 45 the percentage testing positive did not differ from the previous week and remained at 1.1%.
- In week 45 compared to the previous week, the percentage testing positive increased in the Northern Cape and Gauteng provinces and decreased in the Eastern Cape, Free State and KwaZulu-Natal provinces. The percentage testing positive remained unchanged in the Western Cape, North West, Mpumalanga and Limpopo provinces.
- The percentage testing positive in week 45 was highest in the Northern Cape (3.6%) and was less than 2% in all other provinces.

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Executive Summary:

- In the period 1 March 2020 through 13 November 2021, 18,799,755 tests for SARS-CoV-2 have been reported nationally: 16,210,334 PCR and 2,589,421 antigen tests.
- The number of tests reported in week 45 of 2021 (n=179 696: 143 943 PCR and 35 753 antigen tests) was slightly higher than the number of tests reported in the previous week.
- Gauteng reported the largest proportion of tests (35.6%), followed by KwaZulu-Natal (19.5%) and Western Cape (15.5%).
- The overall testing rate increased slightly from 293 per 100,000 persons in week 44 to 301 per 100,000 persons in week 45.
- In week 45, the testing rate increased slightly in the Eastern Cape and was similar to the previous week in all other provinces. The testing rate was highest in Gauteng (413 per 100,000 persons) and lowest in Limpopo (65 per 100,000 persons).
- The testing rate in week 45 was highest in the ≥80 years age group (672 per 100,000 persons).
- In week 45 the percentage testing positive did not differ from the previous week and remained at 1.1% (P=0.950).
- In the past week the percentage testing positive remained at 1.5% in the public sector (P=0.409) and at 0.8% in the private sector (P=0.258).
- In week 45, compared to the previous week, the percentage testing positive increased in the Northern Cape and Gauteng provinces and decreased in the Eastern Cape, Free State and KwaZulu-Natal provinces. The percentage testing positive was unchanged in the Western Cape, North West, Mpumalanga and Limpopo provinces.
- The percentage testing positive in week 45 was highest in the Northern Cape (3.6%) and was less than 2% in all other provinces.
- The highest percentage testing positive was observed in the age groups 15-19 years (2.2%) followed by 10-14 years (2.1%).
- Health sub-districts showing the highest percentage testing positive were concentrated in the Northern Cape (n=11) and four in each of the Free State and the Western Cape.
- Antigen tests accounted for 19.9% (35,753/179, 696) of tests reported in week 45, however the number of antigen tests is likely underestimated due to under-reporting and delayed reporting of antigen tests.
- In week 45 the public sector accounted for 76.5% of antigen tests reported. The majority of antigen tests have been reported from KwaZulu-Natal (33.1%) and Gauteng (19.0%) provinces.
- The mean turnaround time for PCR tests reported in week 45 was 0.7 days; 1.0 day in the public sector and 0.5 days in the private sector. Turnaround times for public sector PCR tests decreased in the North West, Western Cape and Mpumalanga provinces in the past week and were <2 days in all provinces.
- The mean turnaround time for antigen tests reported in week 45 was 5.8 days in the public sector and 0.2 days in the private sector.

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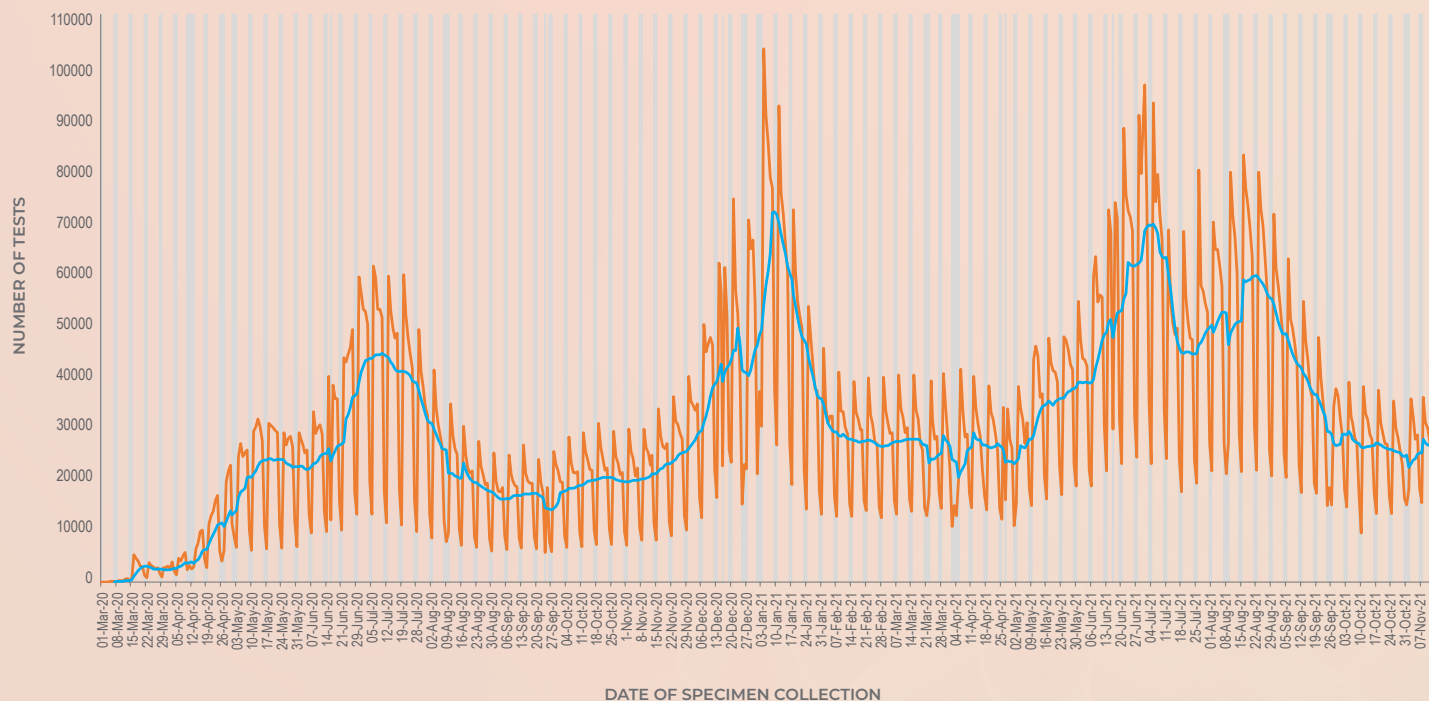


Figure 1. Number of SARS-CoV-2 tests reported by date of specimen collection, South Africa, 1 March 2020 – 13 November 2021. Blue line shows the 7-day moving average of the number of tests reported. Grey bars highlight weekend days and public holidays

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Table 1. Weekly number of SARS-CoV-2 tests and positive tests reported, South Africa, 3 January – 13 November 2021

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)
1	03-Jan-21	501286 (2.7)	151046	30.1
2	10-Jan-21	418037 (2.2)	104804	25.1
3	17-Jan-21	327462 (1.7)	63266	19.3
4	24-Jan-21	249580 (1.3)	34642	13.9
5	31-Jan-21	203712 (1.1)	22364	11.0
6	07-Feb-21	193304 (1.0)	16471	8.5
7	14-Feb-21	190657 (1.0)	12185	6.4
8	21-Feb-21	184700 (1.0)	10385	5.6
9	28-Feb-21	189704 (1.0)	8688	4.6
10	07-Mar-21	193402 (1.0)	8328	4.3
11	14-Mar-21	185516 (1.0)	8153	4.4
12	21-Mar-21	173167 (0.9)	7352	4.2
13	28-Mar-21	163946 (0.9)	7061	4.3
14	04-Apr-21	180858 (1.0)	7290	4.0
15	11-Apr-21	185317 (1.0)	8844	4.8
16	18-Apr-21	184883 (1.0)	9467	5.1
17	25-Apr-21	159993 (0.9)	9180	5.7
18	02-May-21	193907 (1.0)	13457	6.9
19	09-May-21	239969 (1.3)	19932	8.3
20	16-May-21	248459 (1.3)	24211	9.7
21	23-May-21	262353 (1.4)	29715	11.3
22	30-May-21	269950 (1.4)	35971	13.3
23	06-Jun-21	335820 (1.8)	58869	17.5
24	13-Jun-21	366475 (1.9)	86667	23.6
25	20-Jun-21	428673 (2.3)	116730	27.2
26	27-Jun-21	484086 (2.6)	143936	29.7
27	04-Jul-21	439292 (2.3)	139414	31.7
28	11-Jul-21	316982 (1.7)	99403	31.4
29	18-Jul-21	308628 (1.6)	86890	28.2
30	25-Jul-21	345602 (1.8)	86893	25.1
31	01-Aug-21	365395 (1.9)	86508	23.7
32	08-Aug-21	353258 (1.9)	81949	23.2
33	15-Aug-21	415003 (2.2)	93847	22.6
34	22-Aug-21	385477 (2.1)	76953	20.0
35	29-Aug-21	336328 (1.8)	53883	16.0
36	05-Sep-21	293620 (1.6)	37899	12.9
37	12-Sep-21	254349 (1.4)	23425	9.2
38	19-Sep-21	203138 (1.1)	13683	6.7
39	26-Sep-21	200182 (1.1)	9227	4.6
40	03-Oct-21	188114 (1.0)	6253	3.3
41	10-Oct-21	185009 (1.0)	4856	2.6
42	17-Oct-21	180253 (1.0)	3305	1.8
43	24-Oct-21	170481 (0.9)	2465	1.4
44	31-Oct-21	174826 (0.9)	1905	1.1
45	07-Nov-21	179696 (1.0)	1962	1.1
Total		18,799,755 (100.0)	3,114,648	

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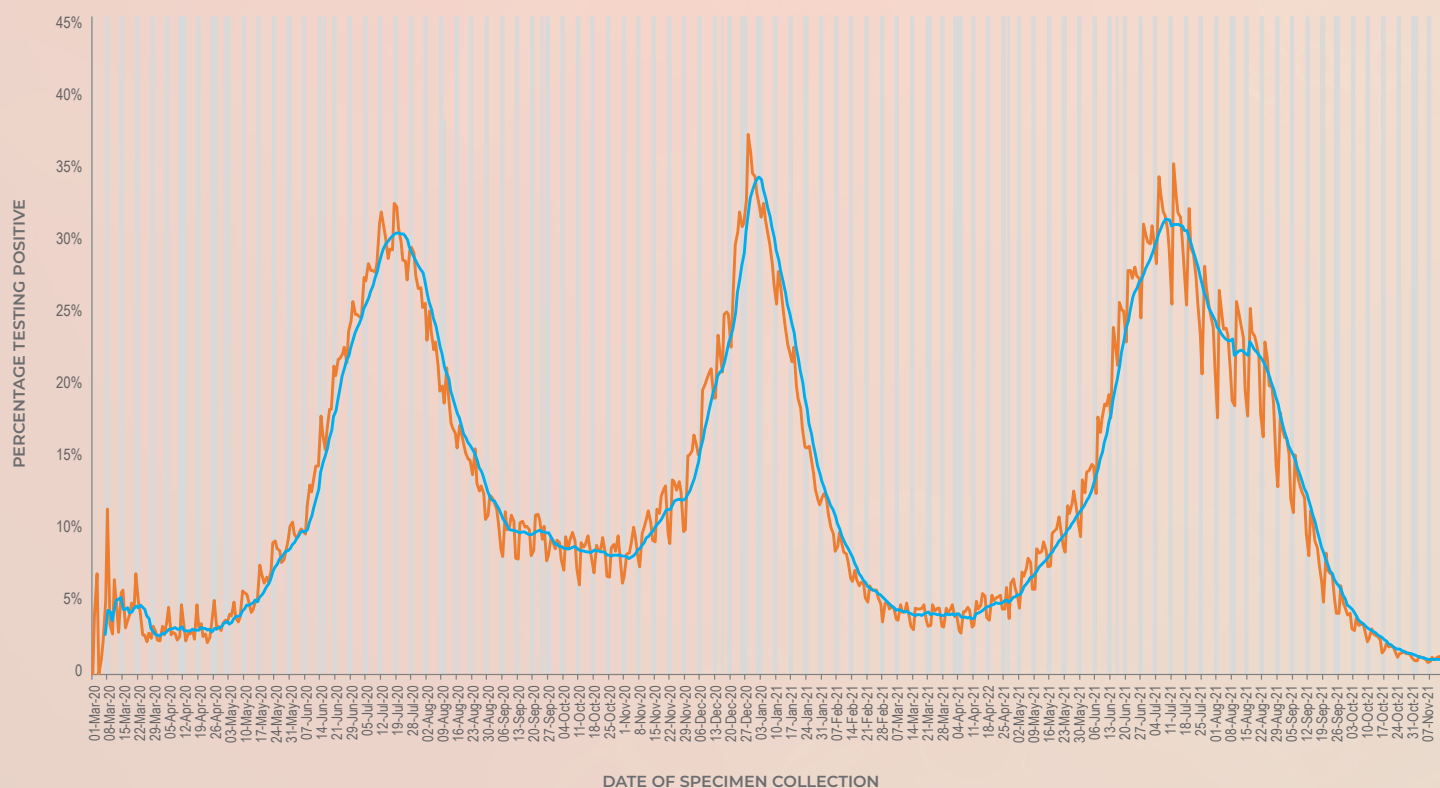


Figure 2. Percentage of tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March 2020 – 13 November 2021. Blue line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

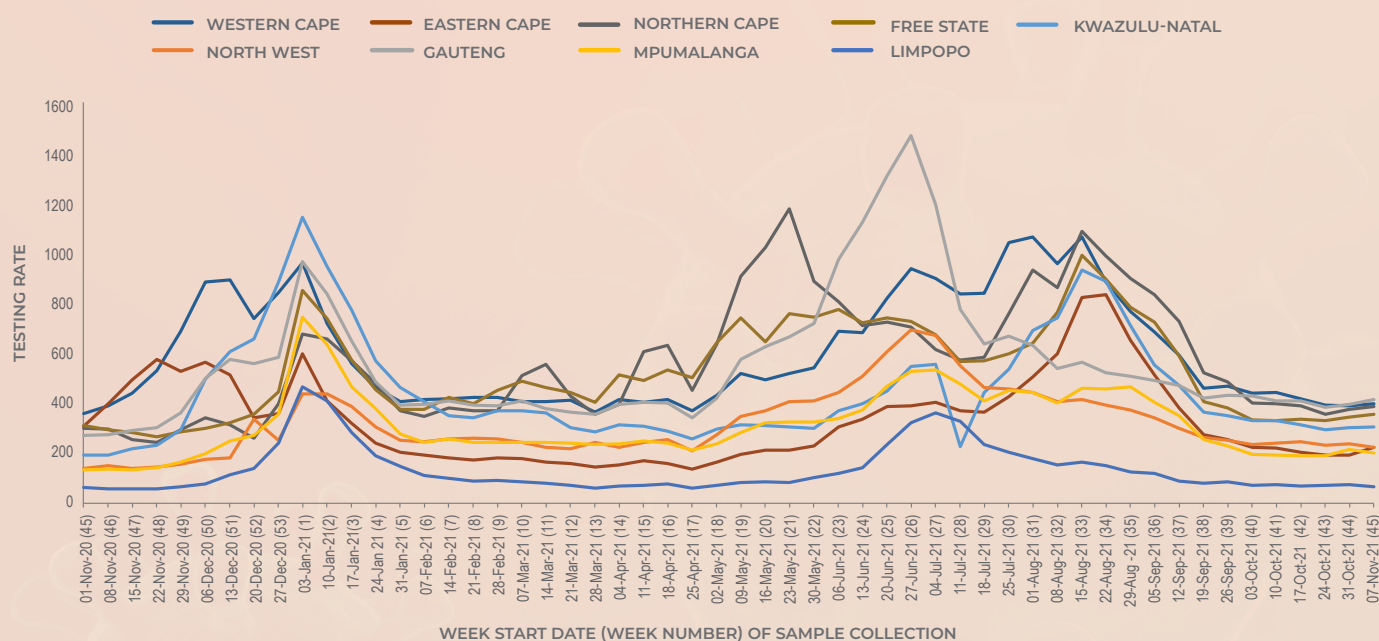


Figure 3. Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 1 November 2020 – 13 November 2021

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Table 2. Weekly number of tests and positive tests reported by province, South Africa, 24 October – 13 November 2021

Province	Population ^a	24-30 Oct 2021		31 Oct – 6 Nov 2021		7-13 Nov 2021		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	27452	446 (1.6)	27154	331 (1.2)	27886	301 (1.1)	398	-0.1%
Eastern Cape	6734001	12865	188 (1.5)	12892	143 (1.1)	14997	106 (0.7)	223	-0.4%
Northern Cape	1292786	4575	236 (5.2)	4845	122 (2.5)	4974	177 (3.6)	385	1.0%
Free State	2928903	9666	287 (3.0)	10092	235 (2.3)	10358	164 (1.6)	354	-0.7%
KwaZulu-Natal	11531628	33922	429 (1.3)	34687	350 (1.0)	34978	281 (0.8)	303	-0.2%
North West	4108816	9504	141 (1.5)	9695	123 (1.3)	9206	118 (1.3)	224	0.0%
Gauteng	15488137	59464	547 (0.9)	61001	420 (0.7)	64021	665 (1.0)	413	0.4%
Mpumalanga	4679786	8915	148 (1.7)	10031	135 (1.3)	9452	105 (1.1)	202	-0.2%
Limpopo	5852553	4112	43 (1.0)	4391	46 (1.0)	3803	45 (1.2)	65	0.1%
Unknown		6	0 (0.0)	38	0 (0.0)	21	0 (0.0)		
Total	59622350	170481	2465 (1.4)	174826	1905 (1.1)	179696	1962 (1.1)	301	0.0%

^a 2020 Mid-year population Statistics SA

^b Current week compared to previous week

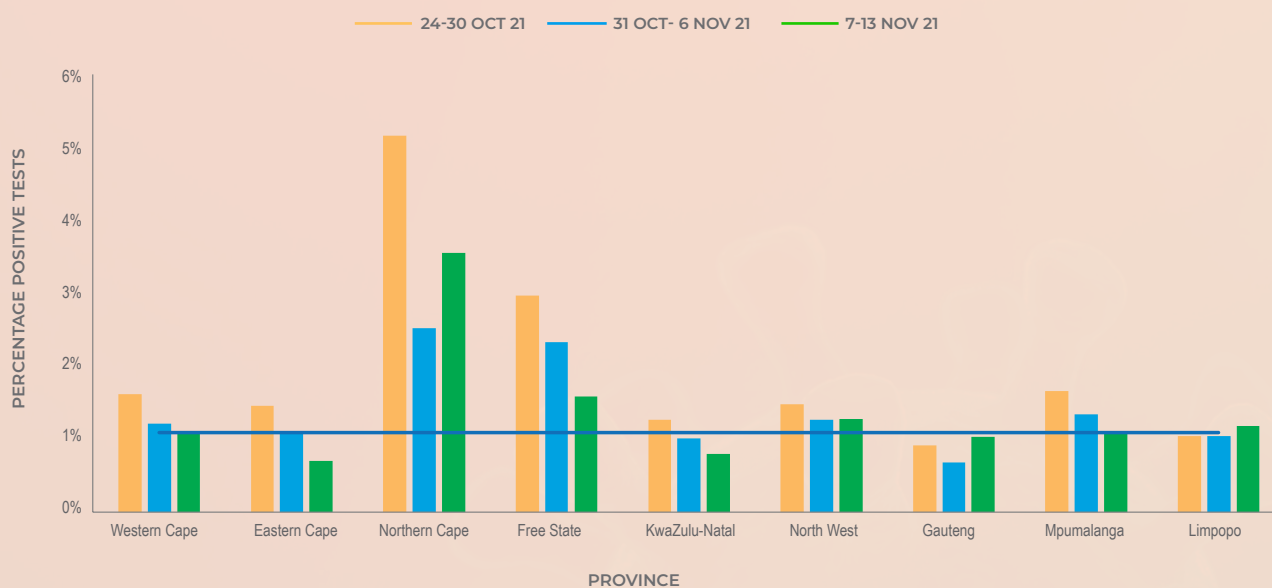


Figure 4. Weekly percentage testing positive by province, South Africa, 24 October – 13 November 2021. The horizontal blue line shows the national mean for week 45, beginning 7 November 2021

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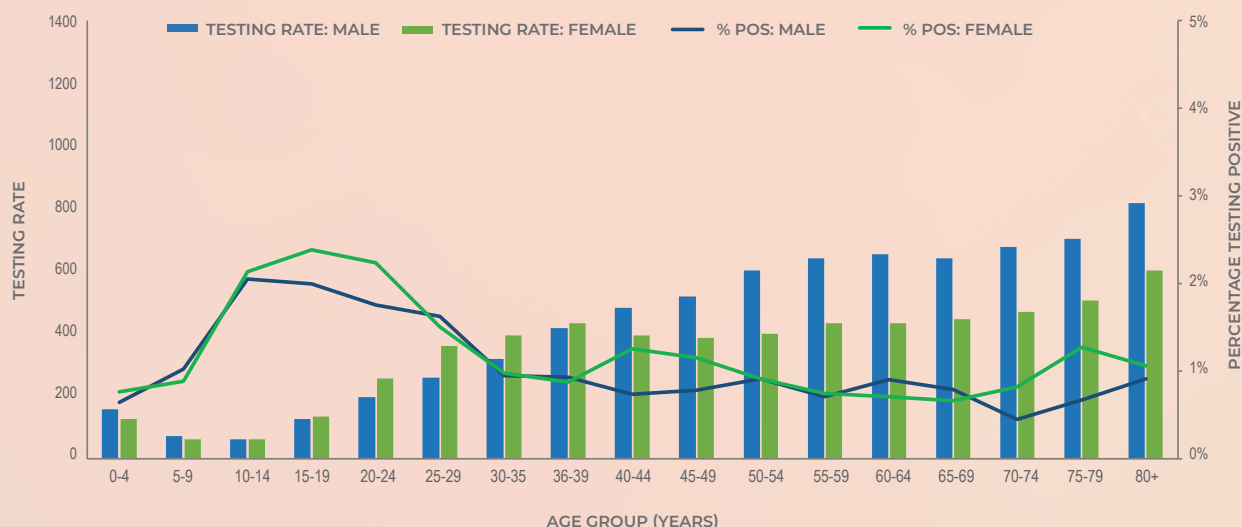


Figure 5. Testing rates per 100,000 persons and percentage testing positive by age group and sex, South Africa, week 45, 7-13 November 2021

Table 3. Health sub-districts with the highest proportion testing positive based on public and private sector data for the week of 7-13 November 2021

Health district or sub-district	Province	PTP (95% CI)	Previous week
Letsemeng	Free State	0.250 (0.134-0.365)	0.370 (0.262-0.478)
Magareng	Northern Cape	0.134 (0.046-0.222)	0.029 (0.000-0.070)
Richtersveld	Northern Cape	0.104 (0.016-0.192)	...
Karoo Hoogland	Northern Cape	0.103 (0.017-0.190)	0.088 (0.000-0.183)
Siyancuma	Northern Cape	0.101 (0.037-0.165)	0.074 (0.033-0.115)
Cape Agulhas	Western Cape	0.092 (0.005-0.179)	0.026 (0.000-0.076)
Swellendam	Western Cape	0.077 (0.033-0.122)	0.010 (0.000-0.031)
Ca-Segonyana	Northern Cape	0.072 (0.031-0.113)	0.064 (0.029-0.099)
Thembelihle	Northern Cape	0.069 (0.000-0.146)	0.028 (0.000-0.066)
Theewaterskloof	Western Cape	0.068 (0.027-0.110)	0.059 (0.013-0.105)
Ngwathe	Free State	0.067 (0.000-0.140)	...
Dikgatlong	Northern Cape	0.065 (0.000-0.152)	...
Emthanjeni	Northern Cape	0.062 (0.024-0.100)	0.037 (0.008-0.066)
Elias Motsoaledi	Limpopo	0.059 (0.003-0.115)	0.058 (0.003-0.112)
Langeberg	Western Cape	0.057 (0.021-0.094)	0.016 (0.000-0.039)
Nama Khoi	Northern Cape	0.051 (0.027-0.075)	0.034 (0.009-0.060)
Kopanong	Free State	0.049 (0.010-0.089)	0.015 (0.000-0.036)
Mafube	Free State	0.047 (0.000-0.100)	0.050 (0.000-0.117)
Greater Taung	North West	0.047 (0.000-0.110)	...
Tshwane 5	Gauteng	0.046 (0.015-0.078)	0.036 (0.001-0.070)
Kai Garib	Northern Cape	0.045 (0.006-0.085)	0.005 (0.000-0.013)
Ratlou	North West	0.045 (0.000-0.132)	...
Lepele-Nkumpi	Limpopo	0.043 (0.000-0.091)	0.036 (0.000-0.076)
Tsantsabane	Northern Cape	0.042 (0.000-0.099)	0.011 (0.000-0.032)
Dr JS Moroka	Mpumalanga	0.039 (0.005-0.073)	0.049 (0.016-0.082)

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.

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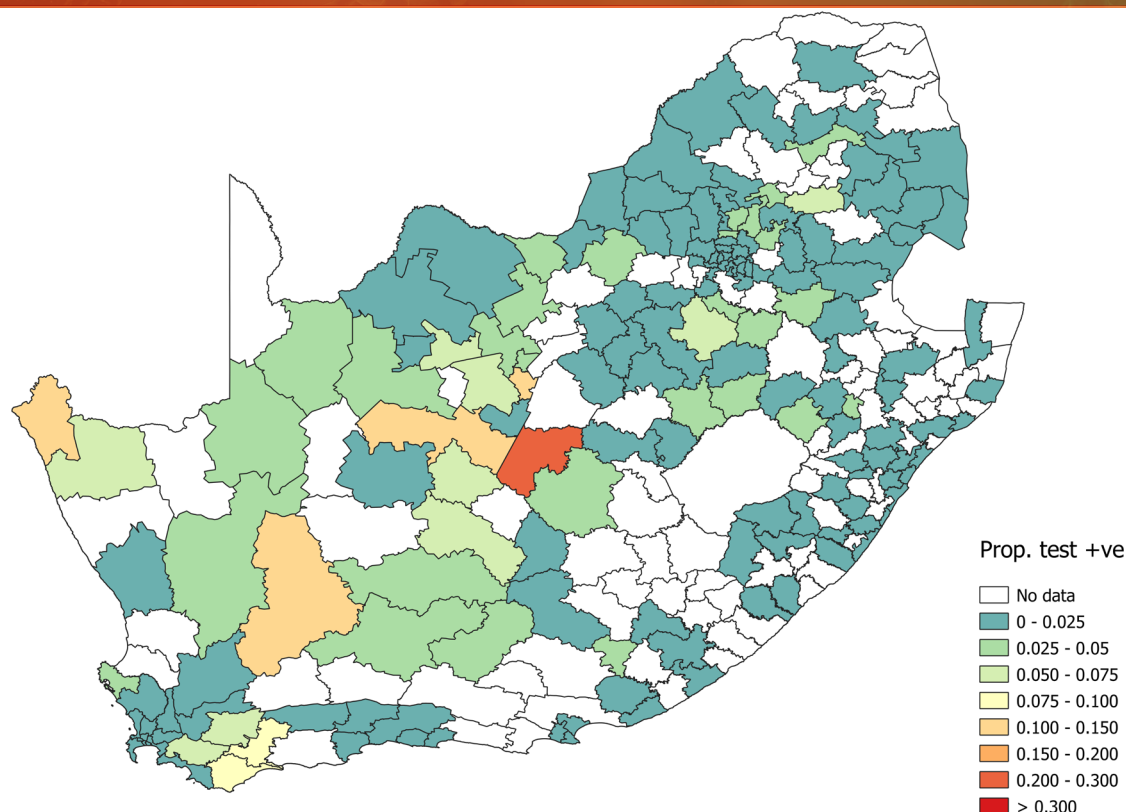


Figure 6. Proportion testing positive by health sub-district in South Africa for the week of 7-13 November 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

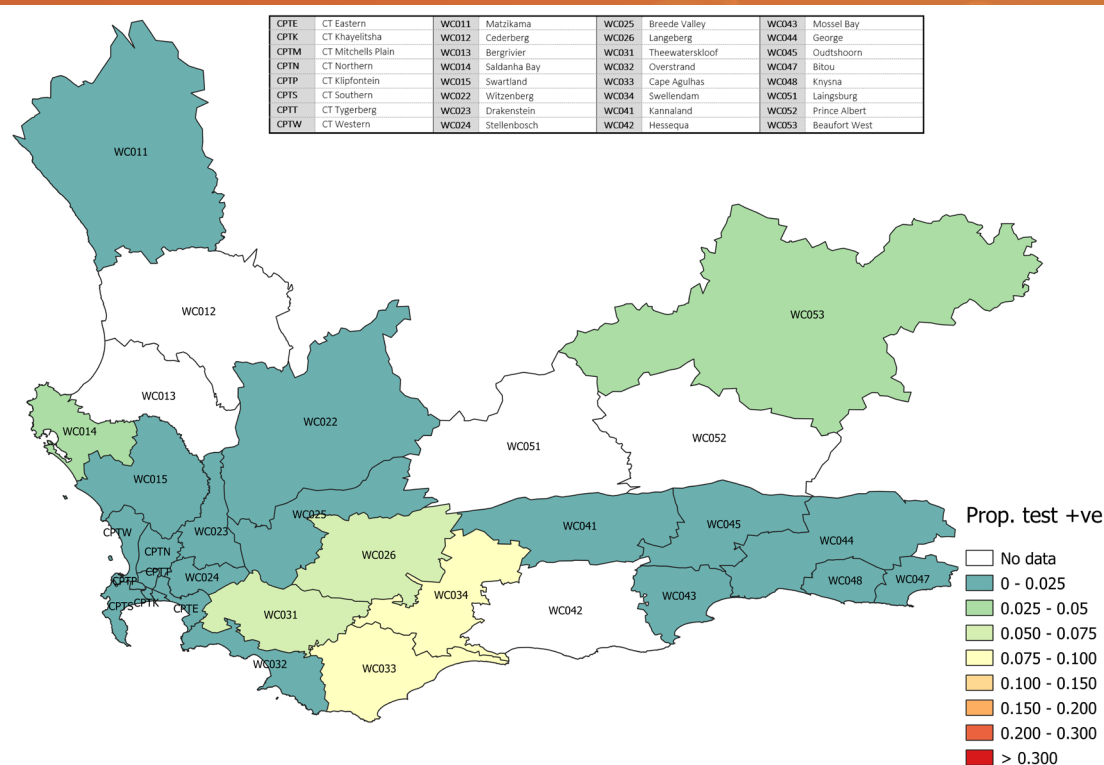


Figure 7. Proportion testing positive by health sub-district in the Western Cape Province for the week of 7-13 November 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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BUF	Buffalo City	EC122	Mquma	EC135	Intsika Yethu	EC355	Nyandeni
EC101	Camdeboo	EC123	Great Kai	EC136	Emalahleni	EC156	Mhlonitlo
EC102	Blue Crane Route	EC124	Amahlathi	EC137	Engcobo	EC157	King Sabata Dalindyebo
EC103	iwedi	EC126	Nqophwa	EC138	Sakhisowe	EC441	Matatiele
EC104	Malama	EC127	Nkomo	EC141	Elundini	EC442	Umtzimvubu
EC105	Ndlambe	EC128	Neuba	EC142	Senqu	EC443	Mbizana
EC106	Sundays River Valley	EC131	Insuka Yethemba	EC143	Maletswai	EC444	Mtabankulu
EC107	Baviaans	EC132	Tsoliwana	EC144	Gariep	NMAA	Nelson Mandela Bay A
EC108	Franga	EC133	Intsika	EC153	Nqutha Hill	NMAB	Nelson Mandela Bay B
EC109	Kou-Kamma	EC134	Lukani	EC154	Port St Johns	NMAC	Nelson Mandela Bay C
EC121	Mthashe						

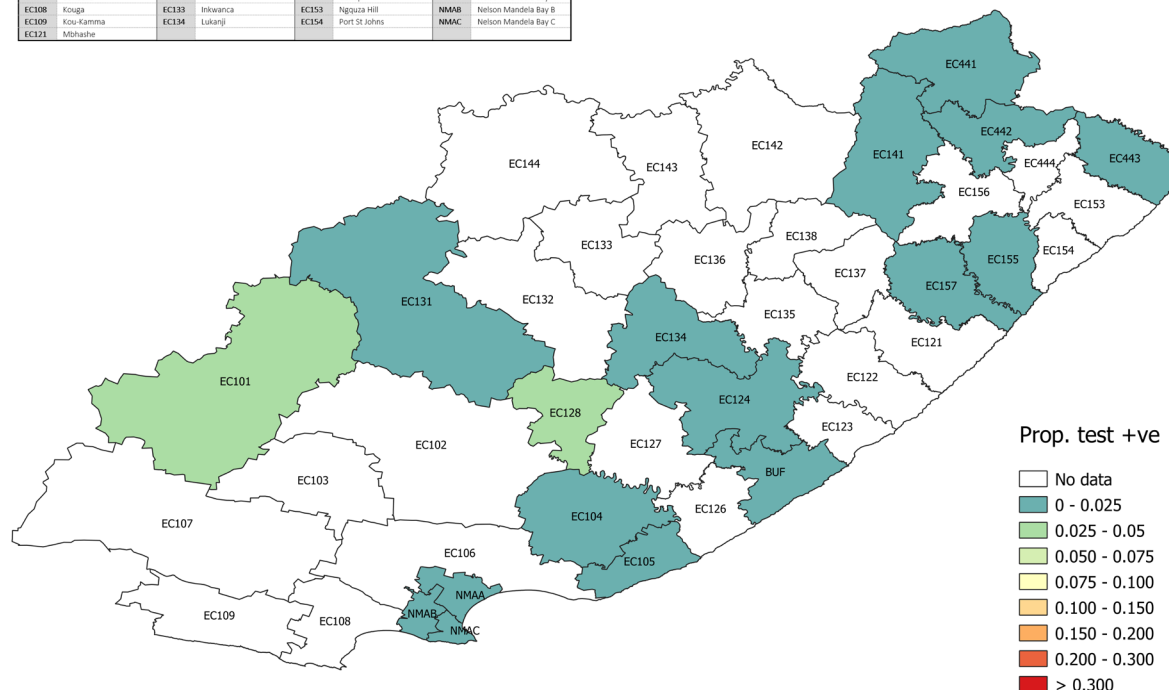


Figure 8. Proportion testing positive by health sub-district in the Eastern Cape Province for the week of 7-13 November 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

NC061	Richtersveld	NC074	Kareeberg	NC085	Tzantsabane
NC062	Nama Khoi	NC075	Rensosterberg	NC086	Agatlopo
NC064	Kamiesberg	NC076	Thembelille	NC091	Sol Plaatje
NC065	Hantam	NC077	Siyathemba	NC092	Dikgatlong
NC066	Karoo Hoogland	NC078	Siyancuma	NC093	Magareng
NC067	Thlali-Ma	NC081	Mier	NC094	Phokwane
NC071	Uburutu	NC082	Kai Igarib	NC451	Joe Morolong
NC072	Umsobomvu	NC083	//Kharas Hais	NC452	Ga-Segonyana
NC073	Emtharjeni	NC084	Ikheis	NC453	Gamagara

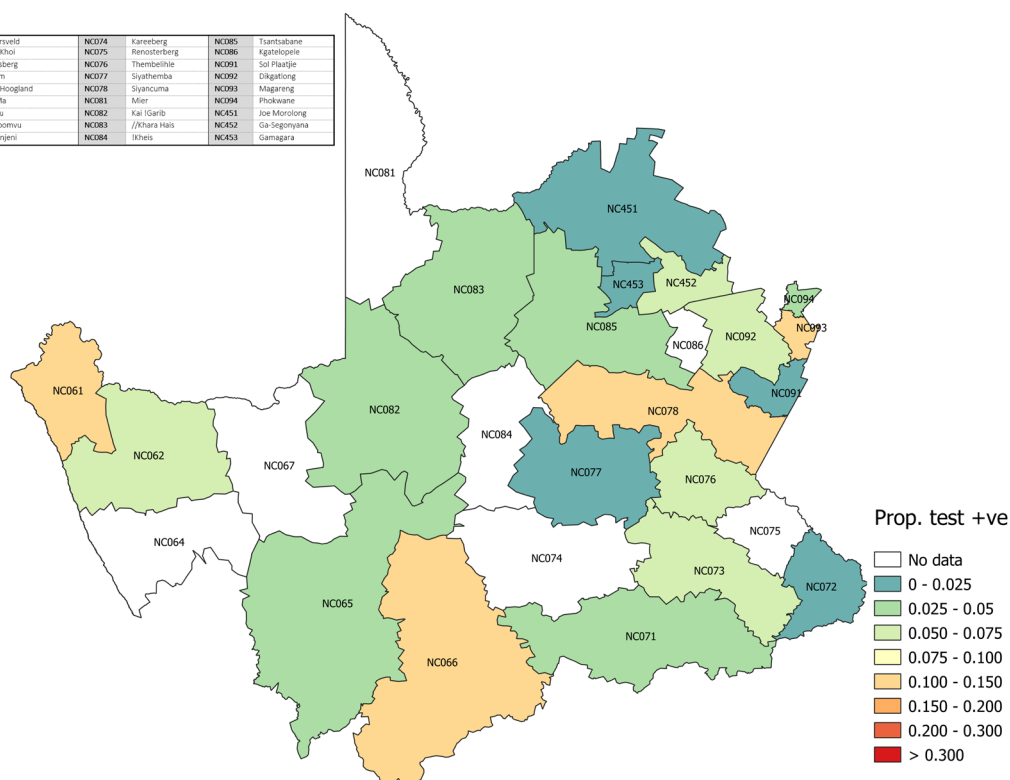


Figure 9. Proportion testing positive by health sub-district in Northern Cape Province for the week of 7-13 November 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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MAN	Mangaung	FS181	Masilonyana	FS191	Setso	FS196	Mantsopa
FS161	Letsemeng	FS182	Tokologo	FS192	Dihlabeng	FS201	Moghaka
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

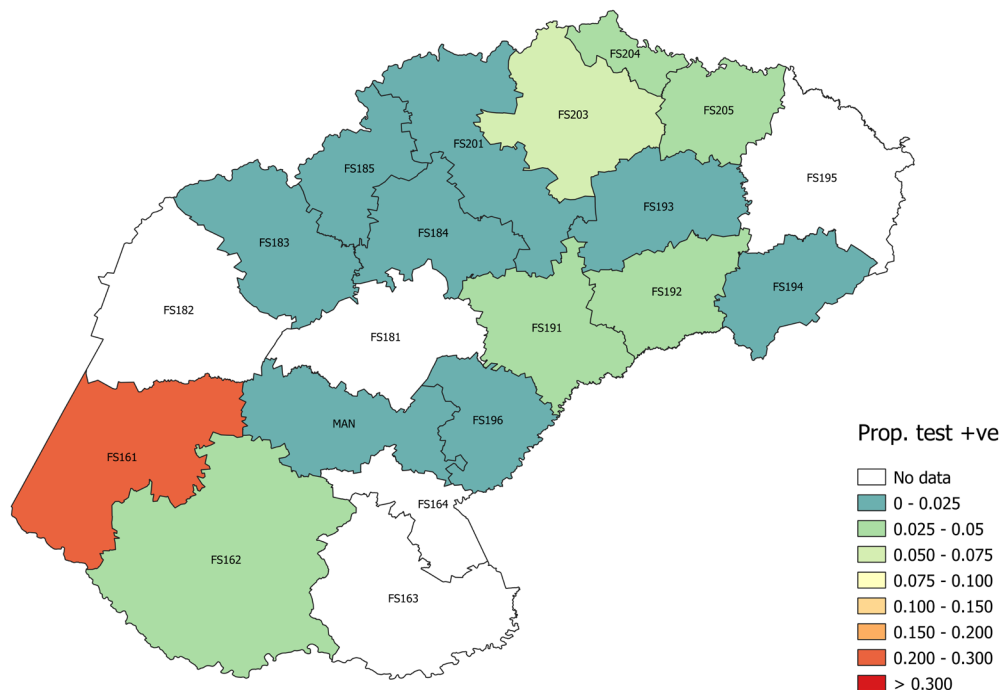


Figure 10. Proportion testing positive by health sub-district in Free State Province for the week of 7-13 November 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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	Imbabatane	KZN281	Mficoloti
KZN211	Volamhelo	KZN241	Endumeni	KZN282	uMkhathuzi
KZN212	Umdoni	KZN242	Nqutu	KZN283	Ntambanana
KZN213	Umtzombe	KZN244	Misinga	KZN284	uMlalazi
KZN214	uMuziwabantu	KZN245	Umvoti	KZN285	Mthonjaneni
KZN215	Ezingoleni	KZN252	Newcastle	KZN286	Nkandla
KZN216	Hibiscus Coast	KZN253	Emadlangeni	KZN291	Mandeni
KZN221	uMshwathi	KZN254	Dannhauser	KZN292	KwaDukuza
KZN222	uMngeni	KZN261	eDumbe	KZN293	Ndwedwe
KZN223	Mporofana	KZN262	uPhongolo	KZN294	Maphumulo
KZN224	Impendle	KZN263	Alaqualusi	KZN431	Ingwe
KZN225	The Msunduzi	KZN265	Nongoma	KZN432	Kwa Sanj
KZN226	Mkhambathini	KZN266	Ulundi	KZN433	Greater Kokstad
KZN227	Richmond	KZN271	Umhlabyalingana	KZN434	Ubuhlebezwe
KZN232	Ennambithi/Ladysmith	KZN272	Jozini	KZN435	Umtimkhulu

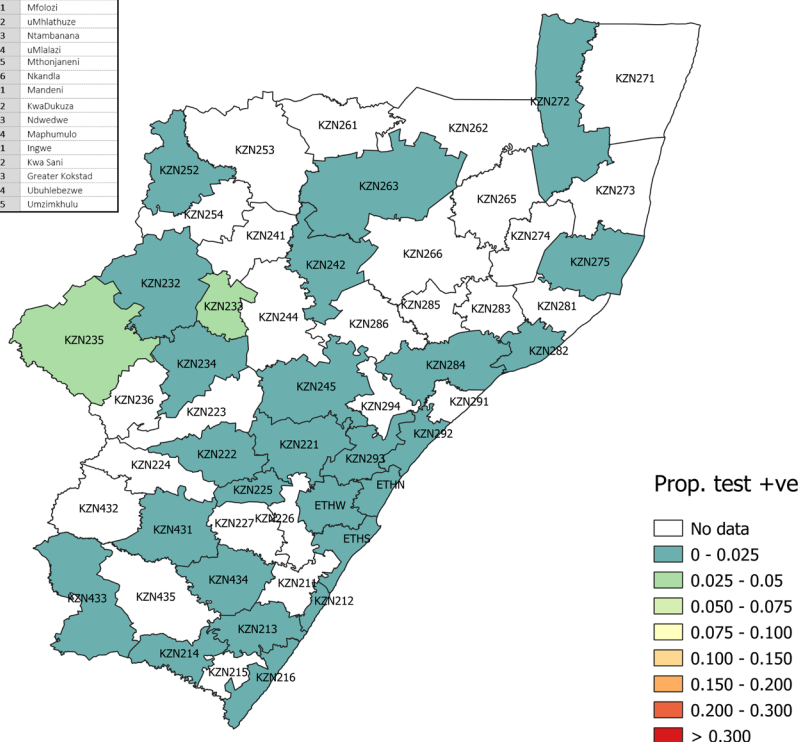


Figure 11. Proportion testing positive by health sub-district in KwaZulu-Natal Province for the week of 7-13 November 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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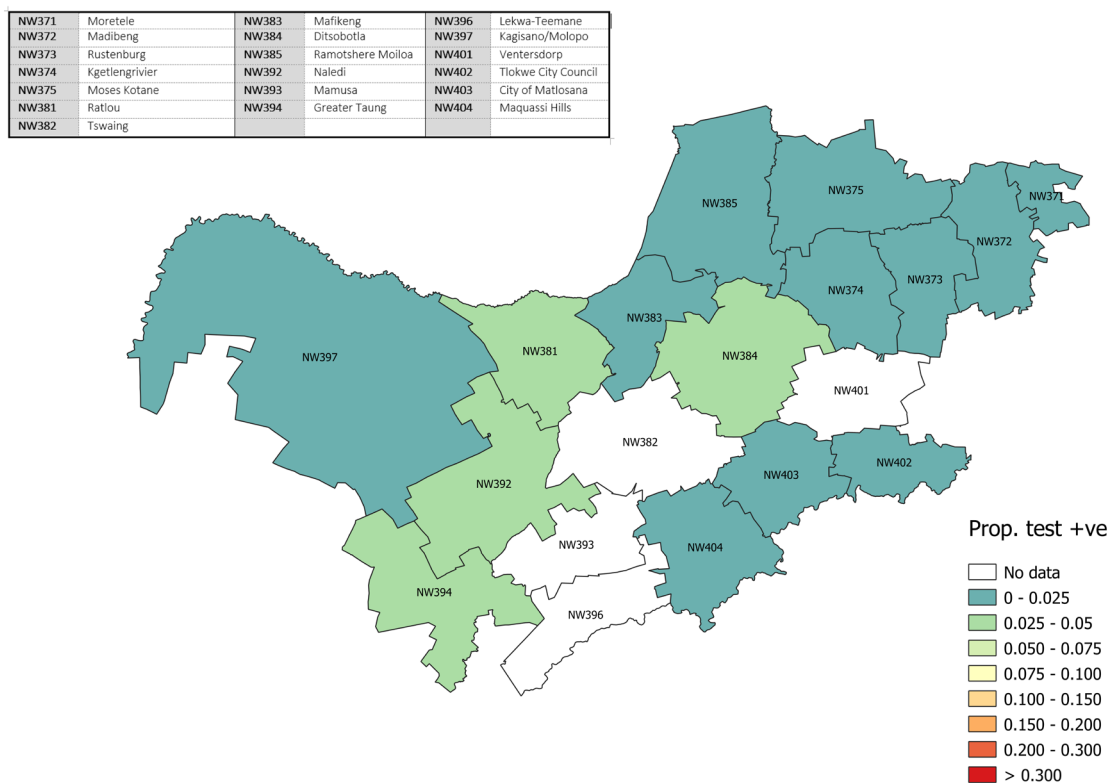


Figure 12. Proportion testing positive by health sub-district in North West Province for the week of 7-13 November 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

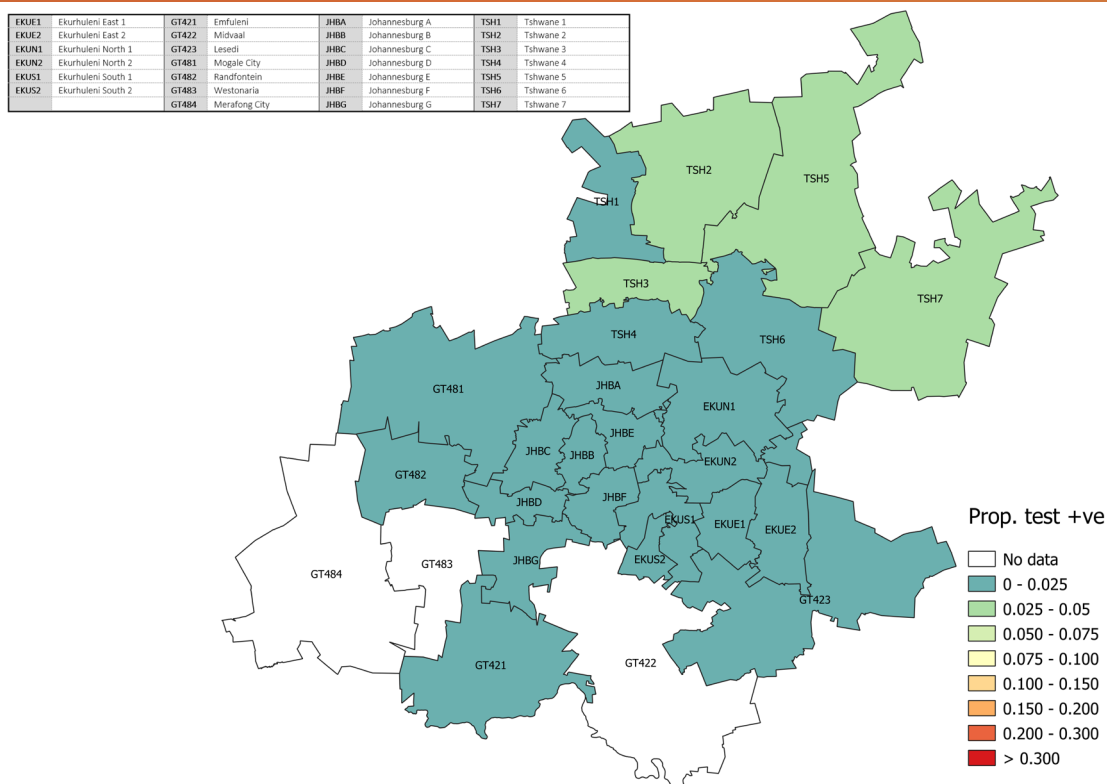


Figure 13. Proportion testing positive by health sub-district in Gauteng Province for the week of 7-13 November 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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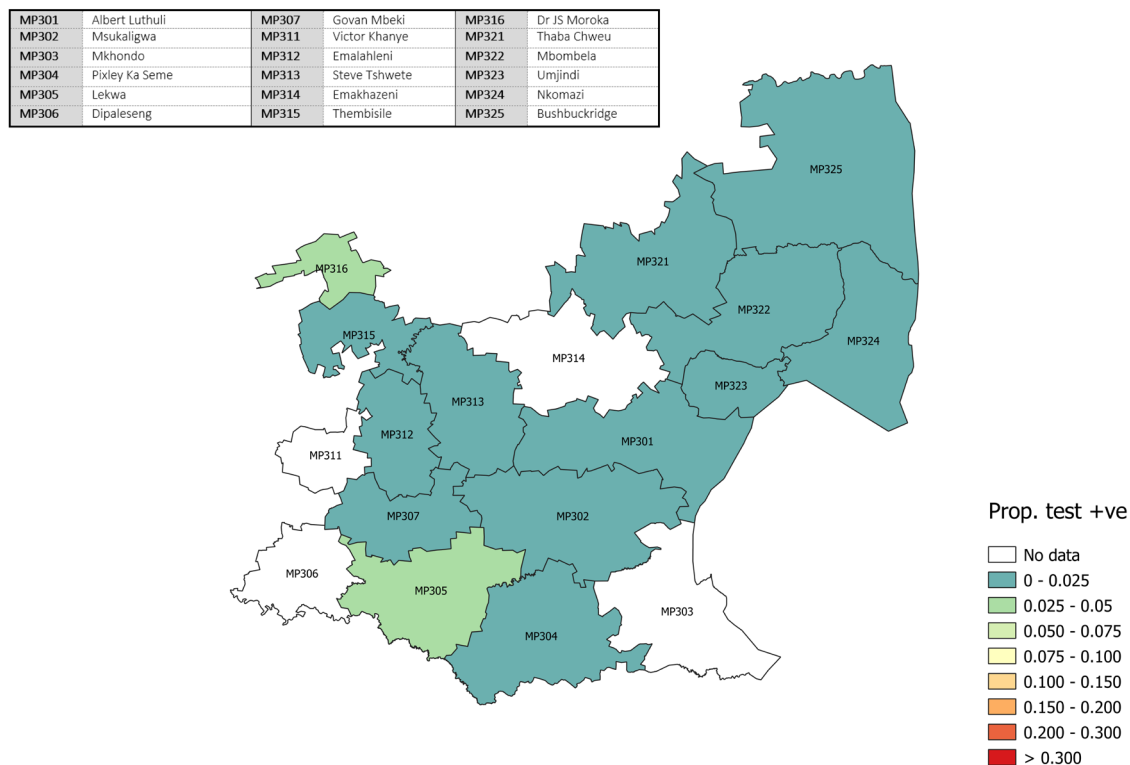


Figure 14. Proportion testing positive by health sub-district in Mpumalanga Province for the week of 7-13 November 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

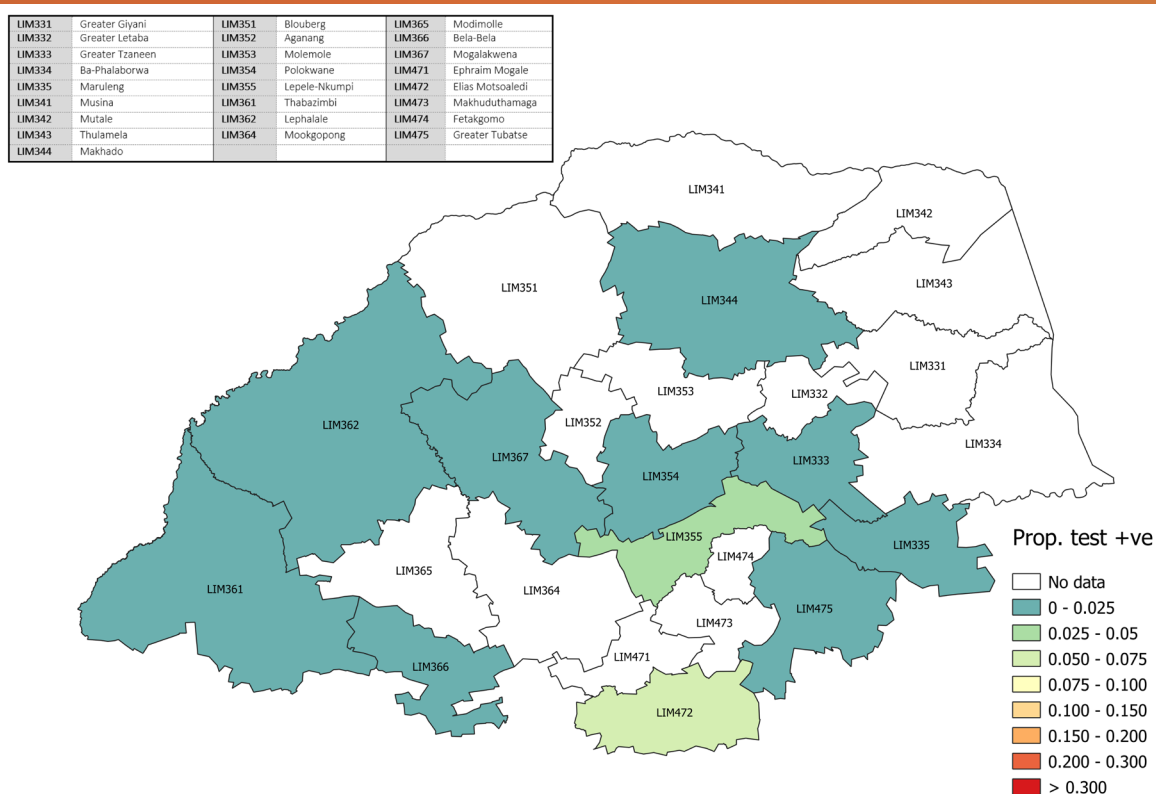


Figure 15. Proportion testing positive by health sub-district in Limpopo Province for the week of 7-13 November 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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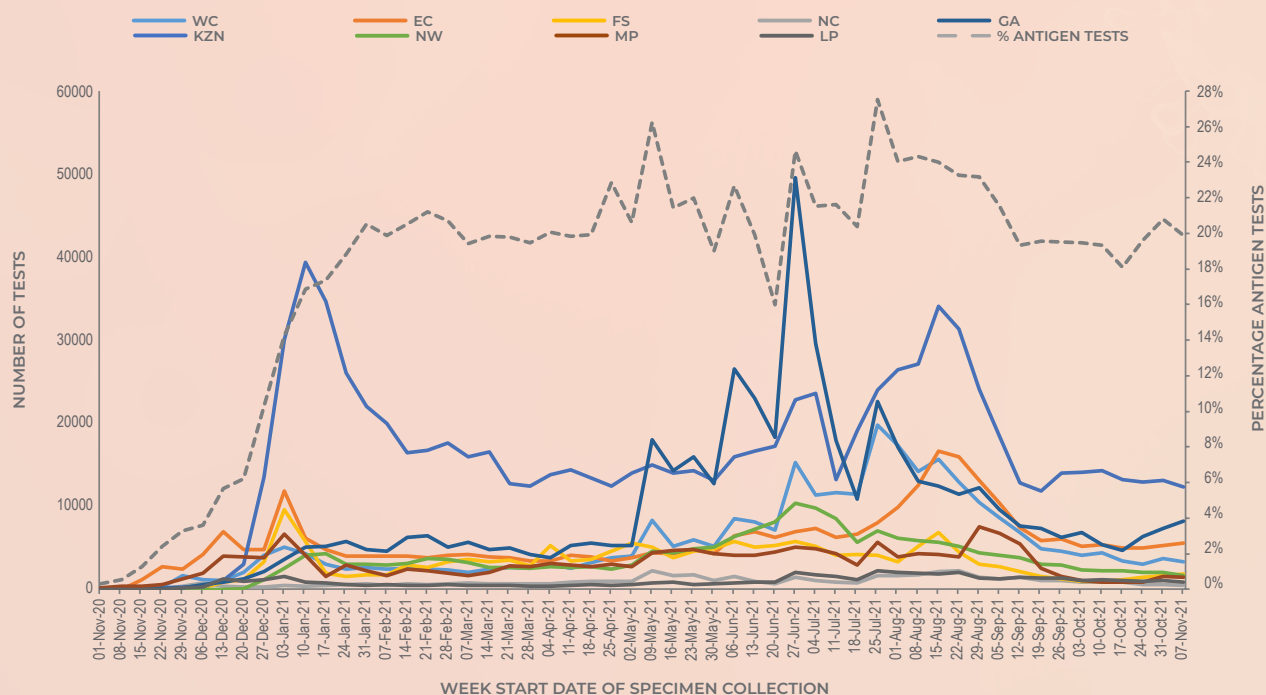


Figure 16. Number of antigen tests by province and overall percentage antigen tests, South Africa, 1 November 2020 – 13 November 2021. WC Western Cape; EC Eastern Cape; FS Free State; KZN KwaZulu-Natal; GA Gauteng; NC Northern Cape; NW North West; MP Mpumalanga; LP Limpopo

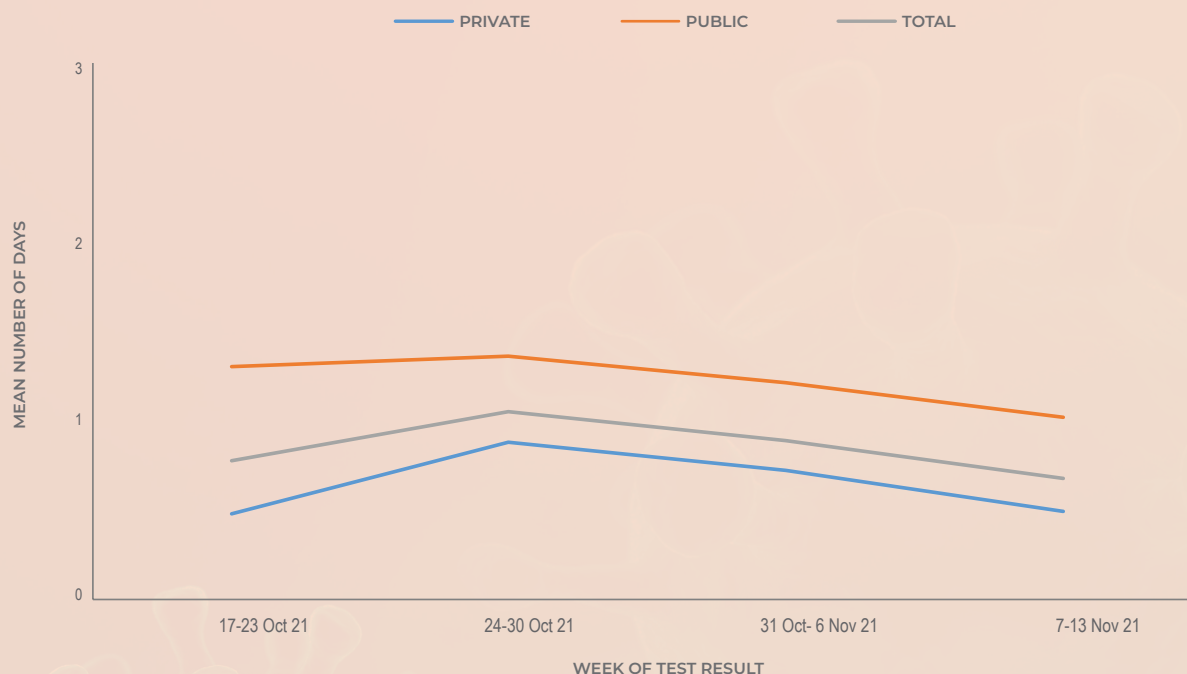


Figure 17. Mean number of days between date of specimen collection and date of test result for PCR tests by week of test result, South Africa, 17 October - 13 November 2021

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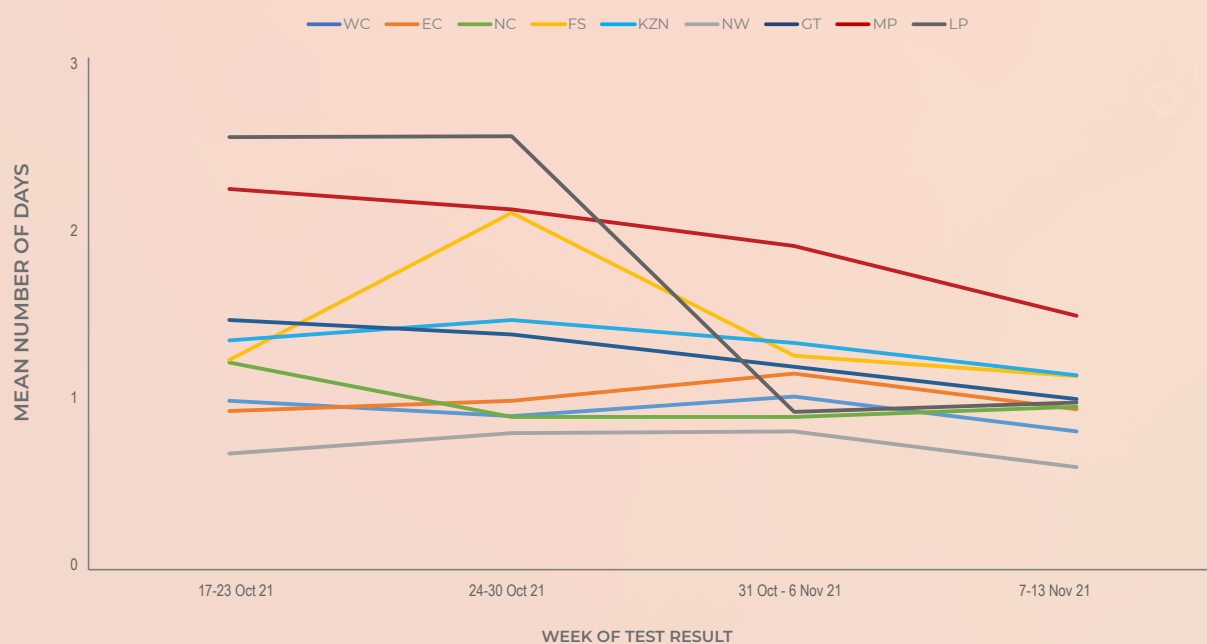


Figure 18. Mean number of days between date of specimen collection and date of test result for PCR tests in the public sector by week of test result and province, South Africa, 17 October – 13 November 2021. WC Western Cape; EC Eastern Cape; FS Free State; KZN KwaZulu-Natal; GT Gauteng; NC Northern Cape; NW North West; MP Mpumalanga; LP Limpopo

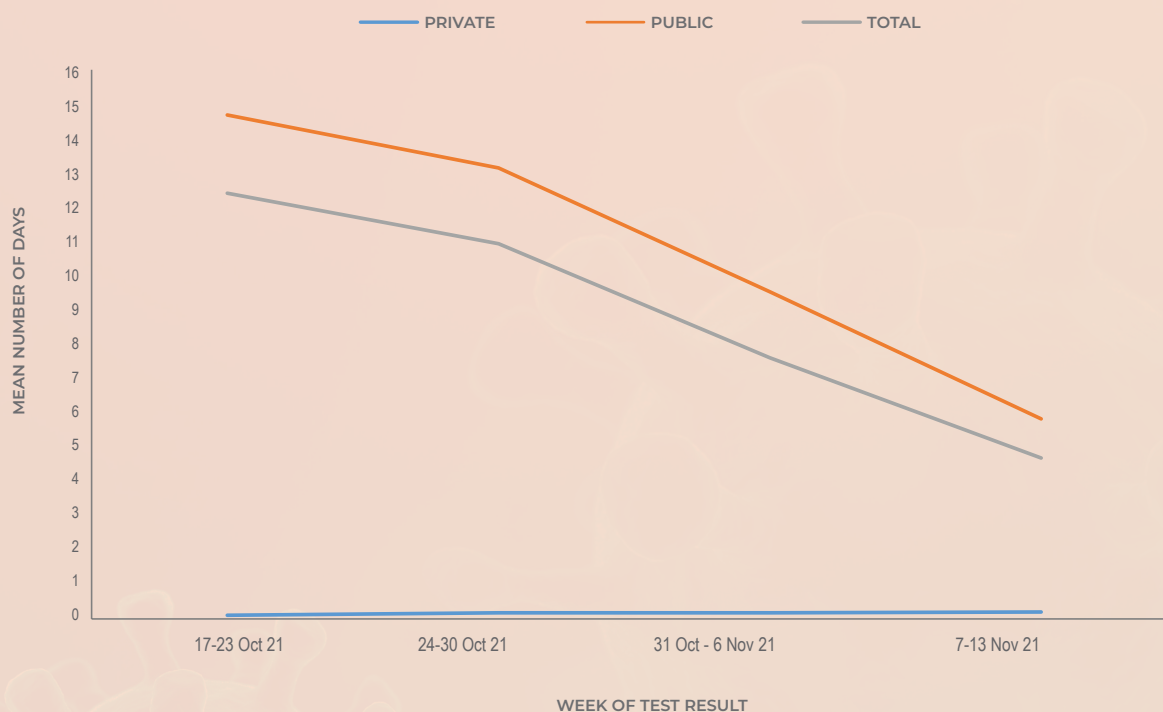


Figure 19. Mean number of days between date of specimen collection and date of test result for antigen tests by week of test result, South Africa, 17 October – 13 November 2021

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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 (NMCCS). 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 85% 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.