COVID-19 TESTING SUMMARY

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

SOUTH AFRICA | WEEK 7 2022

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 19 February 2022 (Week 7 of 2022).

HIGHLIGHTS

- The number of tests reported in week 7 of 2022 (175,964: 137,364 PCR and 38,600 antigen tests) continues to decrease and was lower than the number of tests reported in the previous week.
- In week 7, the testing rate was highest in Gauteng (458 per 100,000 persons) and lowest in Limpopo (75 per 100,000 persons).
- In week 7, the percentage testing positive was 10.2%, which was similar to the previous week.
- In week 7, compared to the previous week, the percentage testing positive increased in the Western Cape, Eastern Cape, North West and Gauteng provinces. The percentage testing positive decreased in KwaZulu-Natal, Mpumalanga and Limpopo, and remained unchanged in the Northern Cape and Free State.
- The percentage testing positive in week 7 was highest in Mpumalanga (16.2%) and was <15% in all other provinces.
- The percentage testing positive was highest in the 10-14 years age group (25.4%).

Executive Summary:

- In the period 1 March 2020 through 19 February 2022, 22,673,708 tests for SARS-CoV-2 have been reported nationally: 18,935,029 PCR and 3,738,679 antigen tests.
- The number of tests reported in week 7 of 2022 (n=175,964: 137,364 PCR and 38,600 antigen tests) was lower than the number of tests reported in the previous week.
- Gauteng reported the largest proportion of tests (41.1%), followed by KwaZulu-Natal (16.5%) and Western Cape (14.7%).
- The overall testing rate decreased slightly from the previous week (326 per 100,000 persons in week 6 to 293 per 100,000 persons in week 7).
- In week 7, a decrease in the testing rate was observed in all provinces. The testing rate was highest in Gauteng (458 per 100,000 persons) and lowest in Limpopo (75 per 100,000 persons).
- The testing rate in week 7 was highest in the ≥80 years age group (531 per 100,000 persons).
- In week 7, the percentage testing positive was 10.2%, which was similar to the previous week (10.3% in week 6, P=0.580).
- In the past week, the percentage testing positive decreased by 0.4% in the public sector (8.2% in week 6 to 7.8% in week 7, P<0.001) and remained unchanged in the private sector (11.5% in week 6 and in week 7, P=0.920).
- In week 7, compared to the previous week, the percentage testing positive increased in the Western Cape, Eastern Cape, North West and Gauteng provinces. The percentage testing positive decreased in KwaZulu-Natal, Mpumalanga and Limpopo, and remained unchanged in the Northern Cape and Free State.
- The percentage testing positive in week 7 was highest in Mpumalanga (16.2%) and was <15% in all other provinces.
- Health sub-districts showing the highest percentage testing positive were concentrated in the Western Cape (n=9), Mpumalanga (n=5), Gauteng (n=3) and KwaZulu-Natal (n=3).
- In week 7, the percentage testing positive remained high in the 5-9, 10-14 and 15-19 years age groups with a slight increase observed in the 15-19 years age group.
- Antigen tests accounted for 21.9% (38,600/ 175,964) of tests reported in week 7, however the number of antigen tests is likely underestimated due to under-reporting and delayed reporting of antigen tests.
- In week 7 the public sector accounted for 63.2% (24,400/ 38,600) of antigen tests reported. A decrease in the number of antigen tests reported was observed across all provinces in the past few weeks.
- The mean turnaround time for PCR tests reported in week 7 was 0.6 days; 1.0 day in the public sector and 0.5 days in the private sector. Turnaround times for public sector PCR tests were <2 days in all provinces.
- The mean turnaround time for antigen tests reported in week 7 was 16.5 days in the public sector and 0.1 days in the private sector.

COVID-19 TESTING SUMMARY

SOUTH AFRICA | WEEK **7** 2022

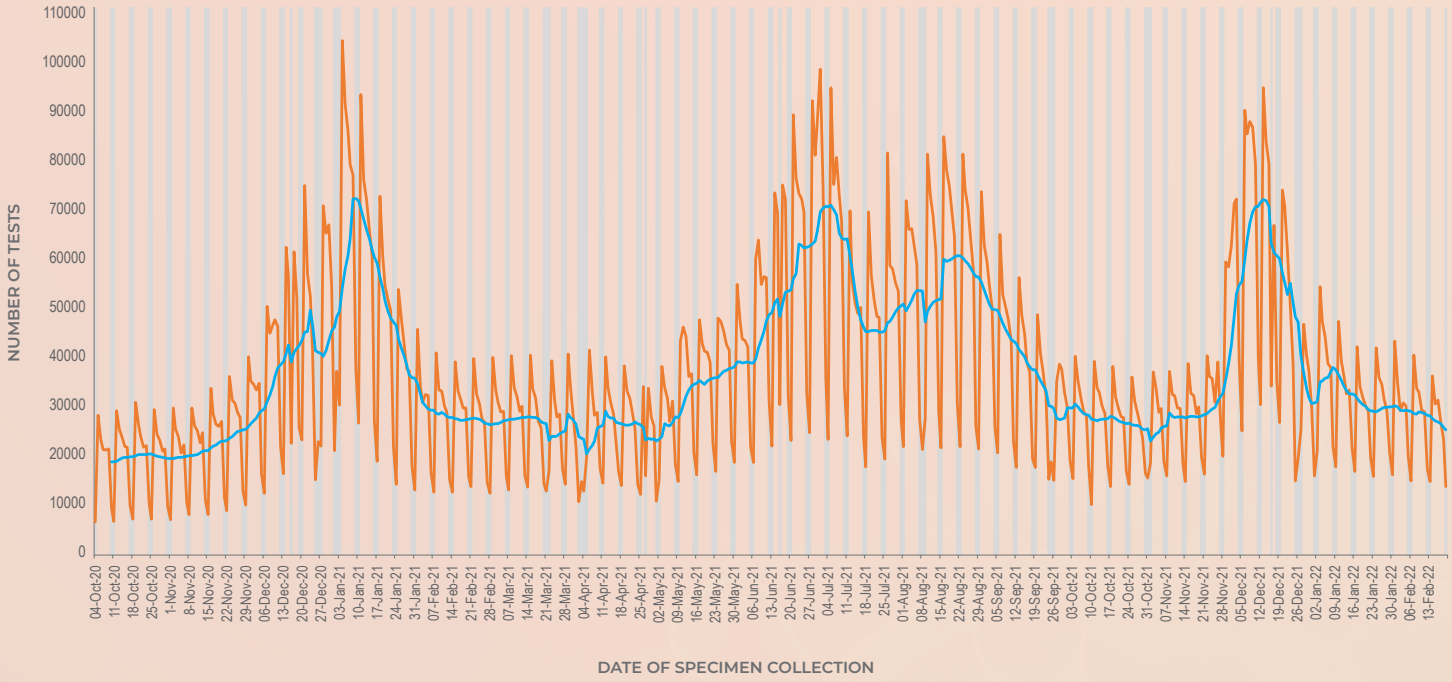

Figure 1. Number of SARS-CoV-2 tests reported by date of specimen collection, South Africa, 4 October 2020 – 19 February 2022. Blue line shows the 7-day moving average of the number of tests reported. Grey bars highlight weekend days and public holidays

Table 1. Weekly number of SARS-CoV-2 tests and positive tests reported, South Africa, 3 January 2021 – 19 February 2022

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)
1	03-Jan-21	501381 (2.2)	151071	30.1
2	10-Jan-21	418299 (1.8)	104825	25.1
3	17-Jan-21	327530 (1.4)	63282	19.3
4	24-Jan-21	249621 (1.1)	34652	13.9
5	31-Jan-21	203796 (0.9)	22380	11.0
6	07-Feb-21	193340 (0.9)	16476	8.5
7	14-Feb-21	190710 (0.8)	12191	6.4
8	21-Feb-21	184726 (0.8)	10389	5.6
9	28-Feb-21	189727 (0.8)	8695	4.6
10	07-Mar-21	193452 (0.9)	8341	4.3
11	14-Mar-21	185524 (0.8)	8156	4.4
12	21-Mar-21	173273 (0.8)	7356	4.2
13	28-Mar-21	163973 (0.7)	7063	4.3
14	04-Apr-21	180873 (0.8)	7292	4.0
15	11-Apr-21	185349 (0.8)	8847	4.8
16	18-Apr-21	184920 (0.8)	9471	5.1
17	25-Apr-21	160024 (0.7)	9182	5.7
18	02-May-21	193972 (0.9)	13463	6.9
19	09-May-21	240291 (1.1)	19939	8.3
20	16-May-21	248488 (1.1)	24212	9.7
21	23-May-21	262635 (1.2)	29778	11.3
22	30-May-21	270303 (1.2)	36106	13.4
23	06-Jun-21	337904 (1.5)	59452	17.6
24	13-Jun-21	370982 (1.6)	88085	23.7
25	20-Jun-21	432499 (1.9)	118631	27.4
26	27-Jun-21	490242 (2.2)	146633	29.9
27	04-Jul-21	443830 (2.0)	141457	31.9
28	11-Jul-21	320630 (1.4)	100947	31.5
29	18-Jul-21	313059 (1.4)	88440	28.3
30	25-Jul-21	350479 (1.5)	88350	25.2
31	01-Aug-21	371725 (1.6)	88124	23.7
32	08-Aug-21	359074 (1.6)	83375	23.2
33	15-Aug-21	420812 (1.9)	95369	22.7
34	22-Aug-21	391407 (1.7)	78174	20.0
35	29-Aug-21	345143 (1.5)	55061	16.0
36	05-Sep-21	300398 (1.3)	38835	12.9
37	12-Sep-21	260628 (1.1)	24011	9.2
38	19-Sep-21	209013 (0.9)	14007	6.7
39	26-Sep-21	206674 (0.9)	9487	4.6
40	03-Oct-21	196607 (0.9)	6445	3.3
41	10-Oct-21	191467 (0.8)	5041	2.6
42	17-Oct-21	185051 (0.8)	3411	1.8
43	24-Oct-21	176394 (0.8)	2565	1.5
44	31-Oct-21	180790 (0.8)	2100	1.2
45	07-Nov-21	194021 (0.9)	2318	1.2
46	14-Nov-21	195621 (0.9)	4807	2.5
47	21-Nov-21	223680 (1.0)	18957	8.5
48	28-Nov-21	379544 (1.7)	98285	25.9
49	05-Dec-21	489866 (2.2)	174731	35.7
50	12-Dec-21	420501 (1.9)	154404	36.7
51	19-Dec-21	334488 (1.5)	117271	35.1
52	20-Dec-21	213900 (0.9)	65590	30.7
1	02-Jan-22	263517 (1.2)	60830	23.1
2	09-Jan-22	226191 (1.0)	34982	15.5

3	16-Jan-22	202758 (0.9)	23854	11.8
4	23-Jan-22	208212 (0.9)	25612	12.3
5	24-Jan-22	203072 (0.9)	22765	11.2
6	06-Feb-22	196319 (0.9)	20130	10.3
7	13-Feb-22	175964 (0.8)	17946	10.2
	Total	**22,673,708 (100.0)**	**3,978,589**	

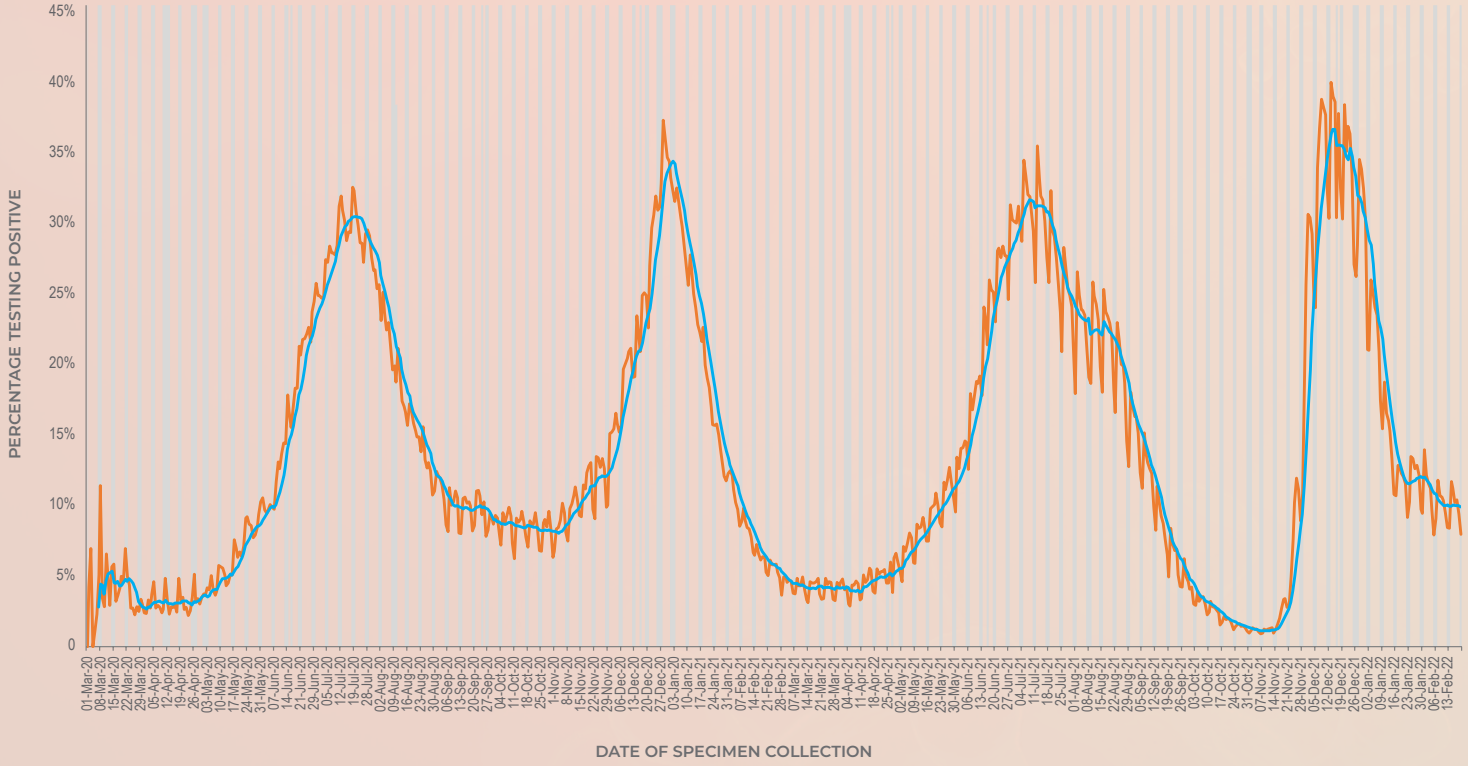

Figure 2. Percentage of tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March 2020 - 19 February 2022. Blue line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

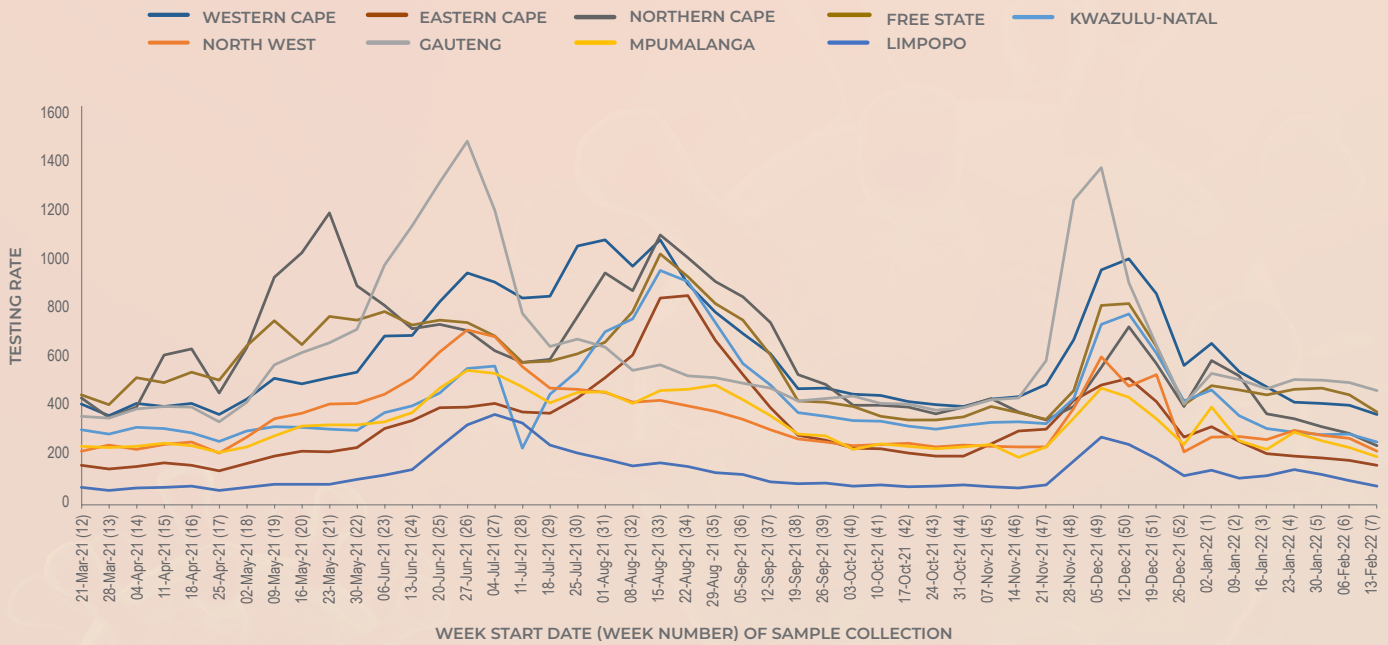

Figure 3. Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 21 March 2021 – 19 February 2022

Table 2. Weekly number of tests and positive tests reported by province, South Africa, 30 January – 19 February 2022

		30 Jan - 5 Feb 2022		6-12 Feb 2022		13-19 Feb 2022			
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	7113776	29012	3492 (12.0)	28375	3451 (12.2)	25855	3302 (12.8)	363	0.6%
Eastern Cape	6676590	12656	857 (6.8)	11979	625 (5.2)	10612	685 (6.5)	159	1.2%
Northern Cape	1303047	4078	562 (13.8)	3735	453 (12.1)	3102	358 (11.5)	238	-0.6%
Free State	2932441	13767	1433 (10.4)	12960	1198 (9.2)	10960	974 (8.9)	374	-0.4%
KwaZulu-Natal	11513575	32504	2687 (8.3)	32852	2668 (8.1)	29060	2158 (7.4)	252	-0.7%
North West	4122854	11557	1688 (14.6)	11017	1327 (12.0)	8944	1294 (14.5)	217	2.4%
Gauteng	15810388	79159	7862 (9.9)	77733	7403 (9.5)	72391	7126 (9.8)	458	0.3%
Mpumalanga	4743584	12214	2428 (19.9)	10923	2029 (18.6)	9157	1479 (16.2)	193	-2.4%
Limpopo	5926724	7316	1677 (22.9)	5835	892 (15.3)	4440	469 (10.6)	75	-4.7%
Unknown		809	79 (9.8)	910	84 (9.2)	1443	101 (7.0)		
Total	**60142978**	**203072**	**22765 (11.2)**	**196319**	**20130 (10.3)**	**175964**	**17946 (10.2)**	**293**	**-0.1%**

a 2021 Mid-year population Statistics SA

b Current week compared to previous week

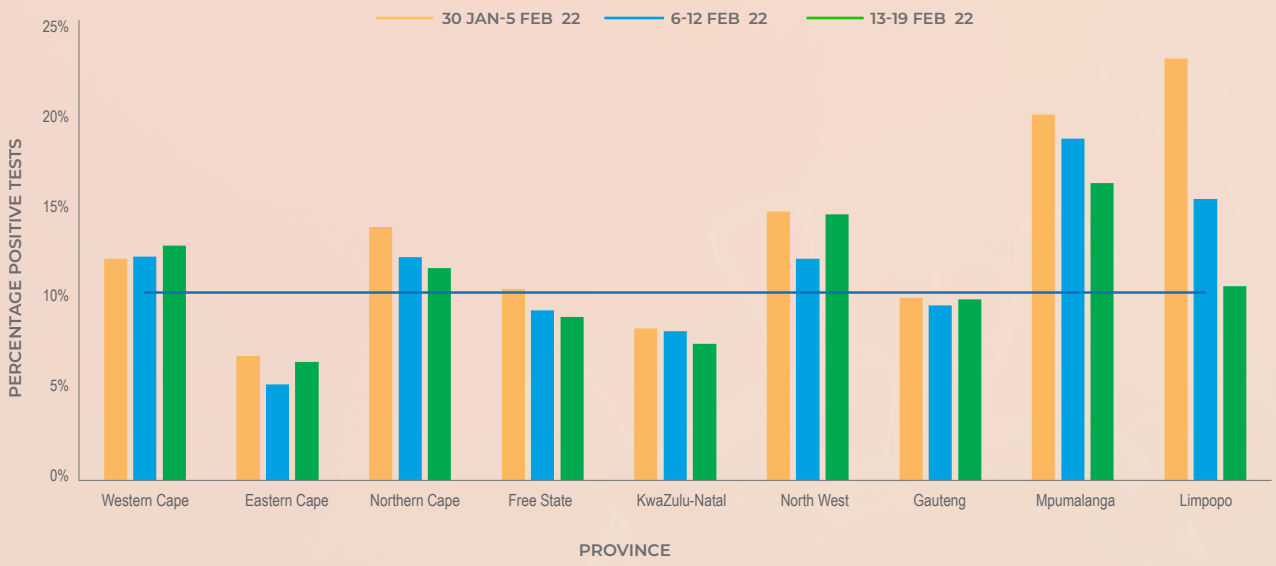

Figure 4. Weekly percentage testing positive by province, South Africa, 30 January – 19 February 2022. The horizontal blue line shows the national mean for week 7, beginning 13 February 2022

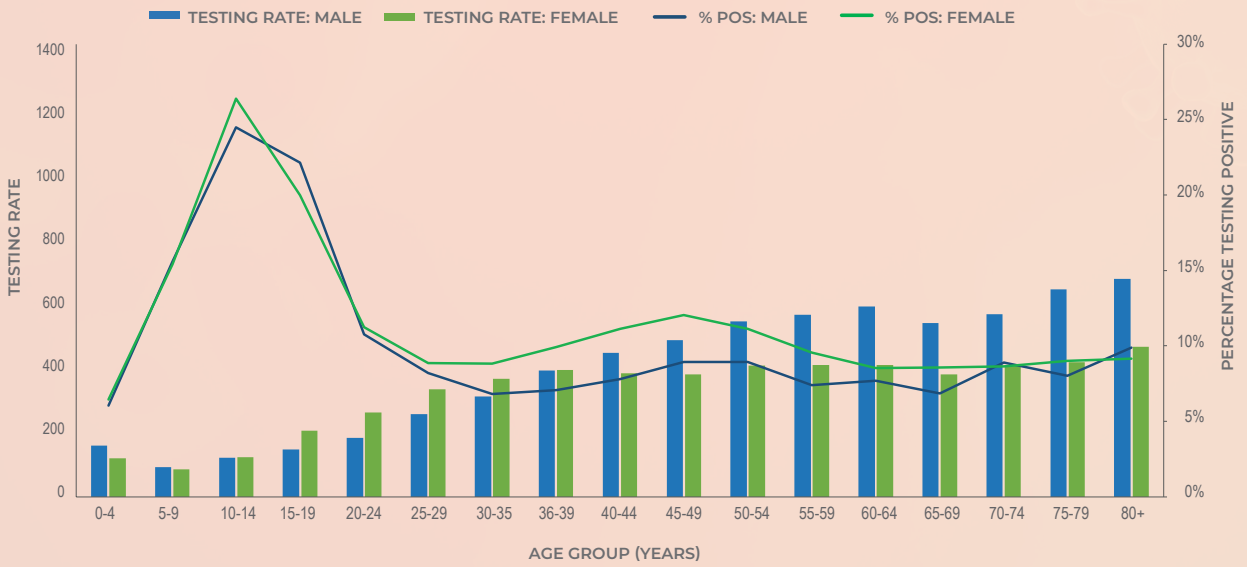

Figure 5. Testing rates per 100,000 persons and percentage testing positive by age group and sex, South Africa, week 7, 13-19 February 2022

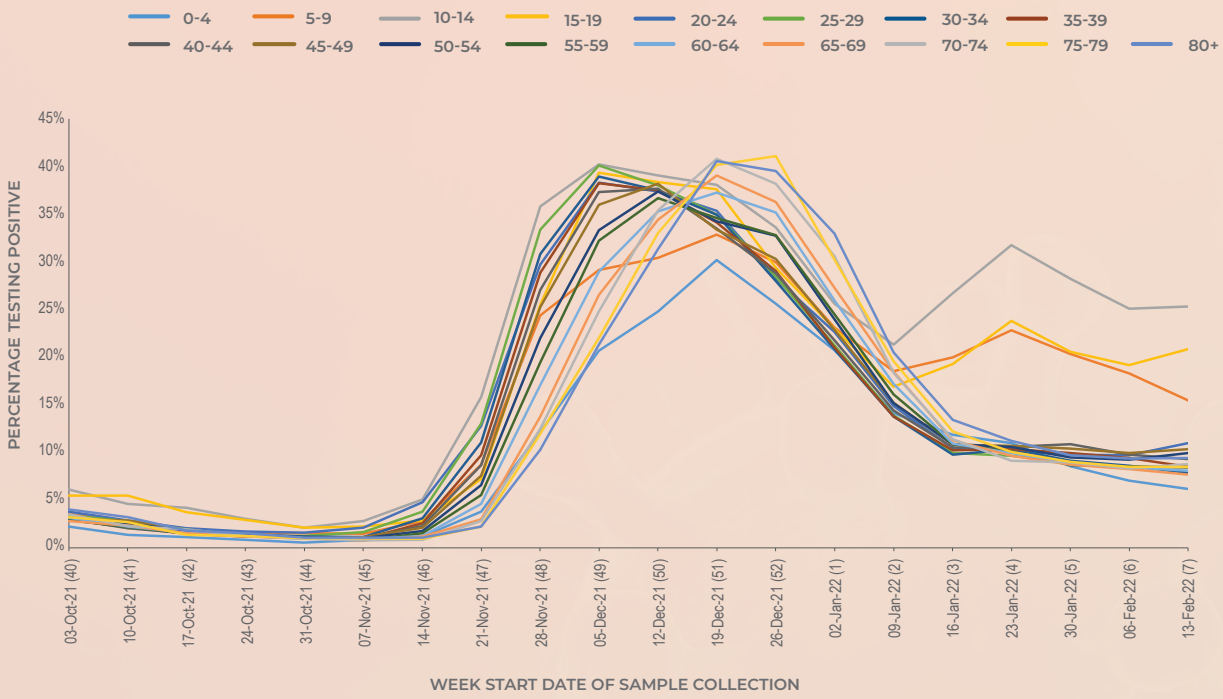

Figure 6. Percentage testing positive by age group and week of specimen collection, South Africa, 3 October 2021 - 19 February 2022

Table 3. Health sub-districts with the highest proportion testing positive based on public and private sector data for the week of 13-19 February 2022

Health district or sub-district	Province	PTP (95% CI)	Previous week
Mthonjaneni	KwaZulu-Natal	0.516 (0.373-0.659)	0.463 (0.352-0.574)
Modimolle	Limpopo	0.379 (0.241-0.518)	0.351 (0.250-0.451)
Hantam	Northern Cape	0.324 (0.197-0.452)	0.257 (0.123-0.390)
Matzikama	Western Cape	0.294 (0.228-0.361)	0.206 (0.154-0.257)
Randfontein	Gauteng	0.292 (0.260-0.325)	0.315 (0.285-0.345)
Cape Agulhas	Western Cape	0.277 (0.149-0.404)	0.190 (0.092-0.288)
Kgetlengrivier	North West	0.276 (0.175-0.376)	0.070 (0.025-0.116)
Witzenberg	Western Cape	0.253 (0.168-0.339)	0.268 (0.184-0.352)
Drakenstein	Western Cape	0.251 (0.223-0.279)	0.206 (0.182-0.230)
Msukaligwa	Mpumalanga	0.235 (0.194-0.276)	0.256 (0.219-0.294)
Saldanha Bay	Western Cape	0.228 (0.187-0.268)	0.203 (0.164-0.241)
Breede Valley	Western Cape	0.224 (0.184-0.264)	0.233 (0.197-0.269)
CT Northern	Western Cape	0.222 (0.203-0.241)	0.174 (0.158-0.190)
Govan Mbeki	Mpumalanga	0.219 (0.189-0.249)	0.198 (0.172-0.224)
Umzimkhulu	KwaZulu-Natal	0.215 (0.136-0.294)	0.277 (0.194-0.359)
Steve Tshwete	Mpumalanga	0.214 (0.189-0.239)	0.239 (0.216-0.262)
Oudtshoorn	Western Cape	0.212 (0.151-0.273)	0.174 (0.128-0.220)
Umjindi	Mpumalanga	0.204 (0.095-0.313)	0.161 (0.075-0.246)
Tlokwe City Council	North West	0.204 (0.174-0.233)	0.157 (0.133-0.181)
Midvaal	Gauteng	0.199 (0.064-0.335)	0.160 (0.074-0.246)
Stellenbosch	Western Cape	0.192 (0.165-0.220)	0.176 (0.149-0.203)
Tshwane 7	Gauteng	0.192 (0.138-0.247)	0.127 (0.079-0.175)
Umhlabuyalingana	KwaZulu-Natal	0.188 (0.117-0.259)	0.217 (0.137-0.296)
Lephalale	Limpopo	0.187 (0.152-0.222)	0.156 (0.128-0.184)
Mkhondo	Mpumalanga	0.179 (0.108-0.249)	0.087 (0.041-0.132)

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.

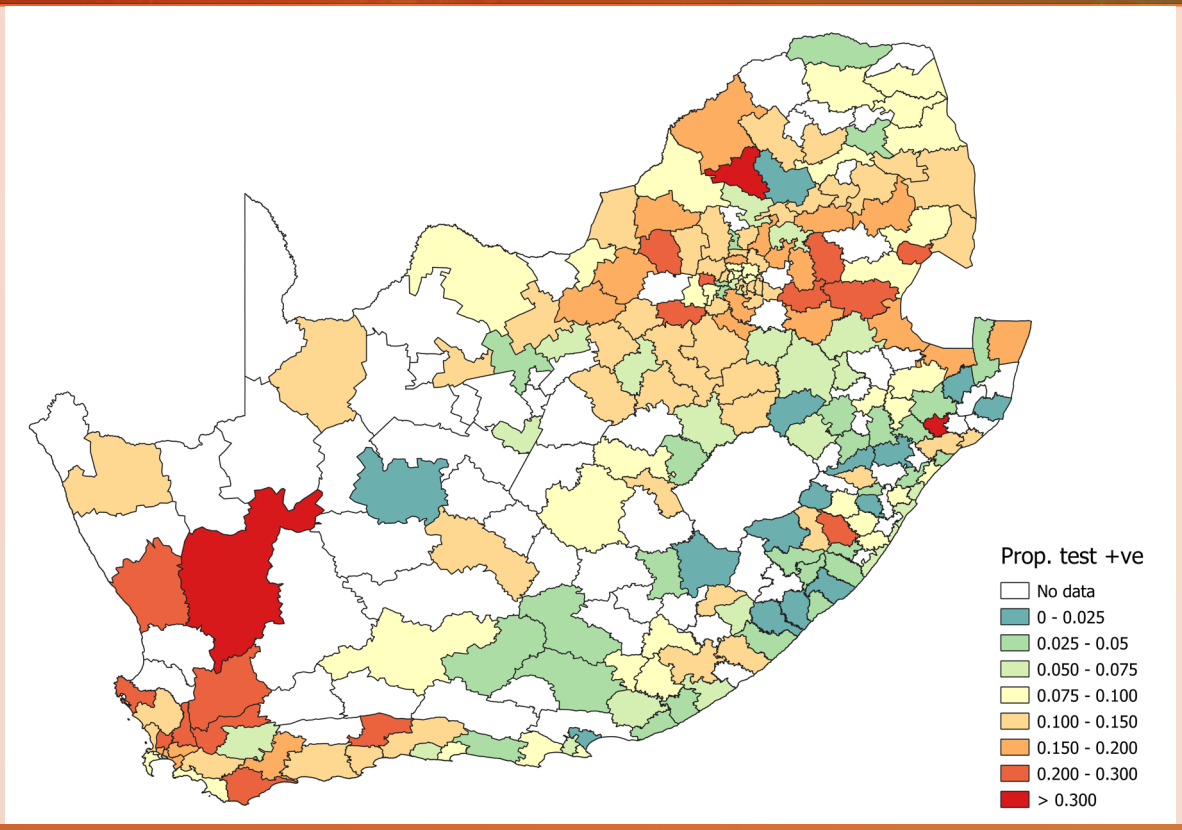

Figure 7. Proportion testing positive by health sub-district in South Africa for the week of 13-19 February 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

CPTE	CT Eastern	WC011	Matzikama	WC025	Breede Valley	WC043	Mossel Bay
CPTK	CT Khayelitsha	WC012	Cederberg	WC026	Langeberg	WC044	George
CPTM	CT Mitchells Plain	WC013	Bergrivier	WC031	Theewaterskloof	WC045	Oudtshoorn
CPTN	CT Northern	WC014	Saldanha Bay	WC032	Overstrand	WC047	Bitou
CPTP	CT Klipfontein	WC015	Swartland	WC033	Cape Agulhas	WC048	Knysna
CPTS	CT Southern	WC022	Witzenberg	WC034	Swellendam	WC051	Laingsburg
CPTT	CT Tygerberg	WC023	Drakenstein	WC041	Kannaland	WC052	Prince Albert
CPTW	CT Western	WC024	Stellenbosch	WC042	Hessequa	WC053	Beaufort West

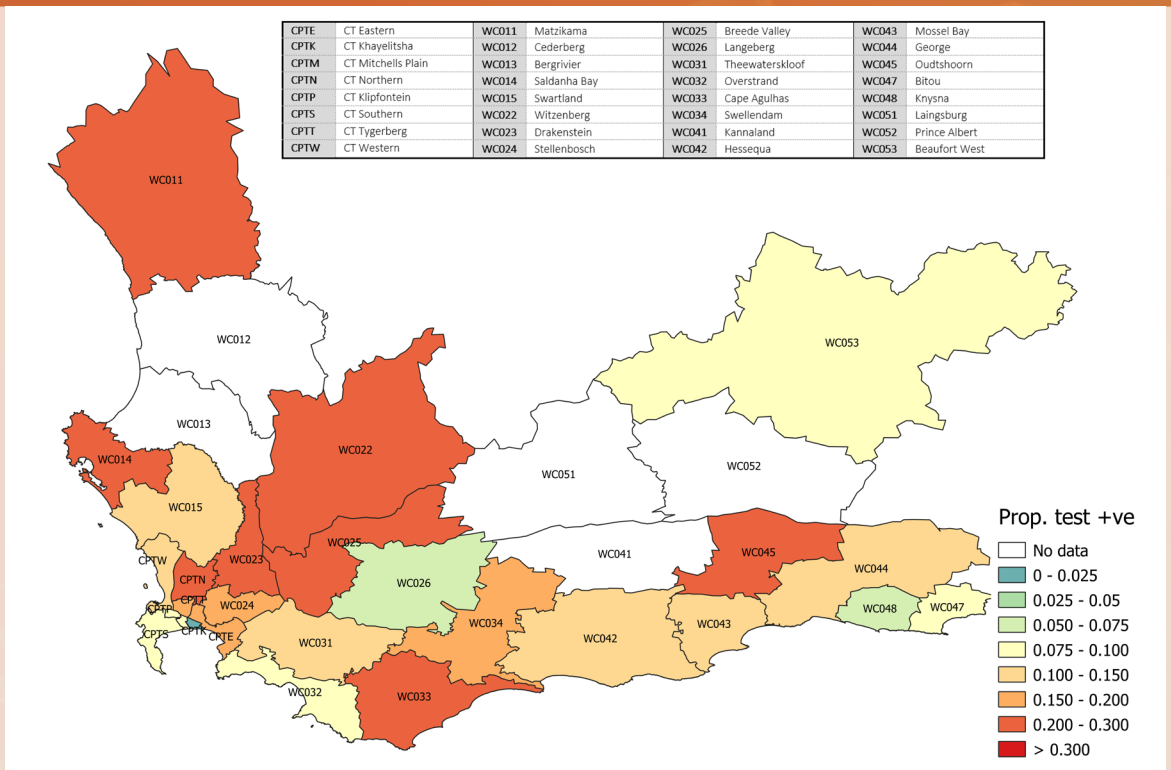

Figure 8. Proportion testing positive by health sub-district in the Western Cape Province for the week of 13-19 February 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%

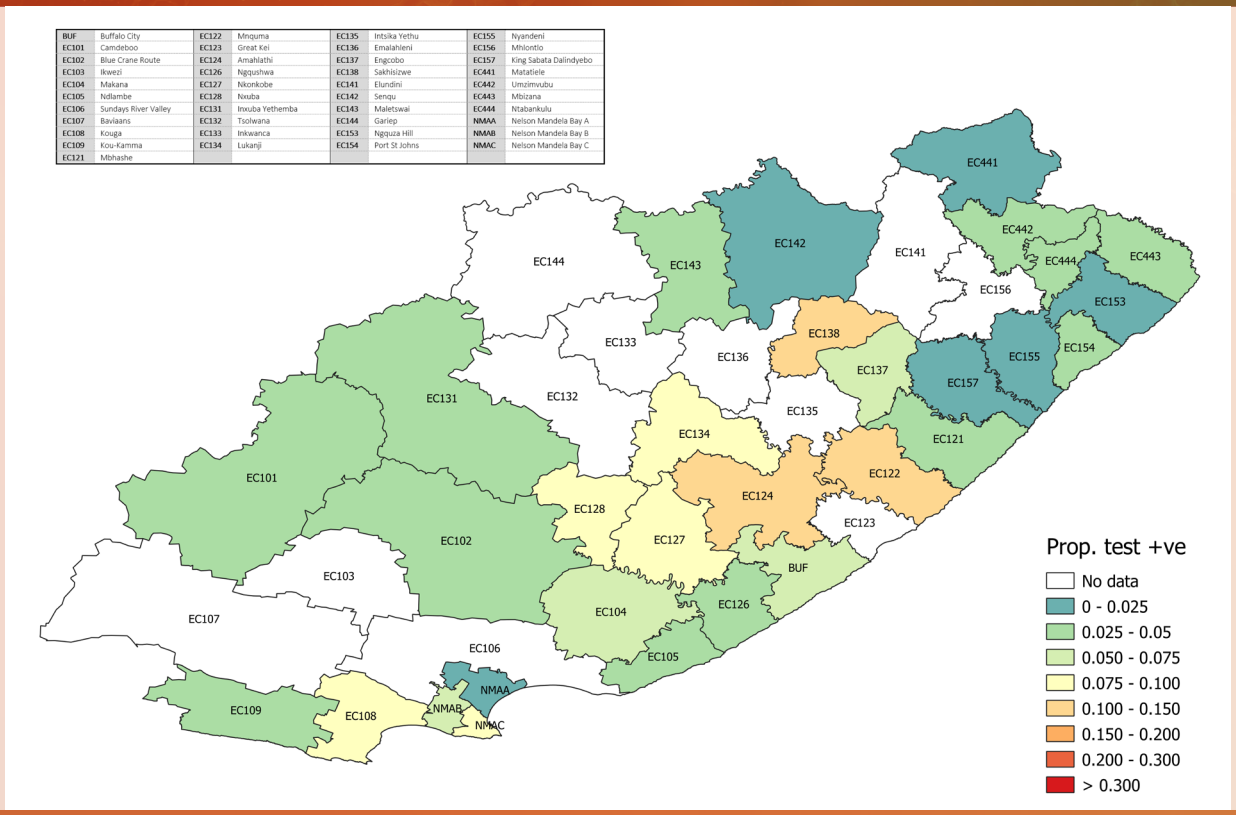

Figure 9. Proportion testing positive by health sub-district in the Eastern Cape Province for the week of 13-19 February 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

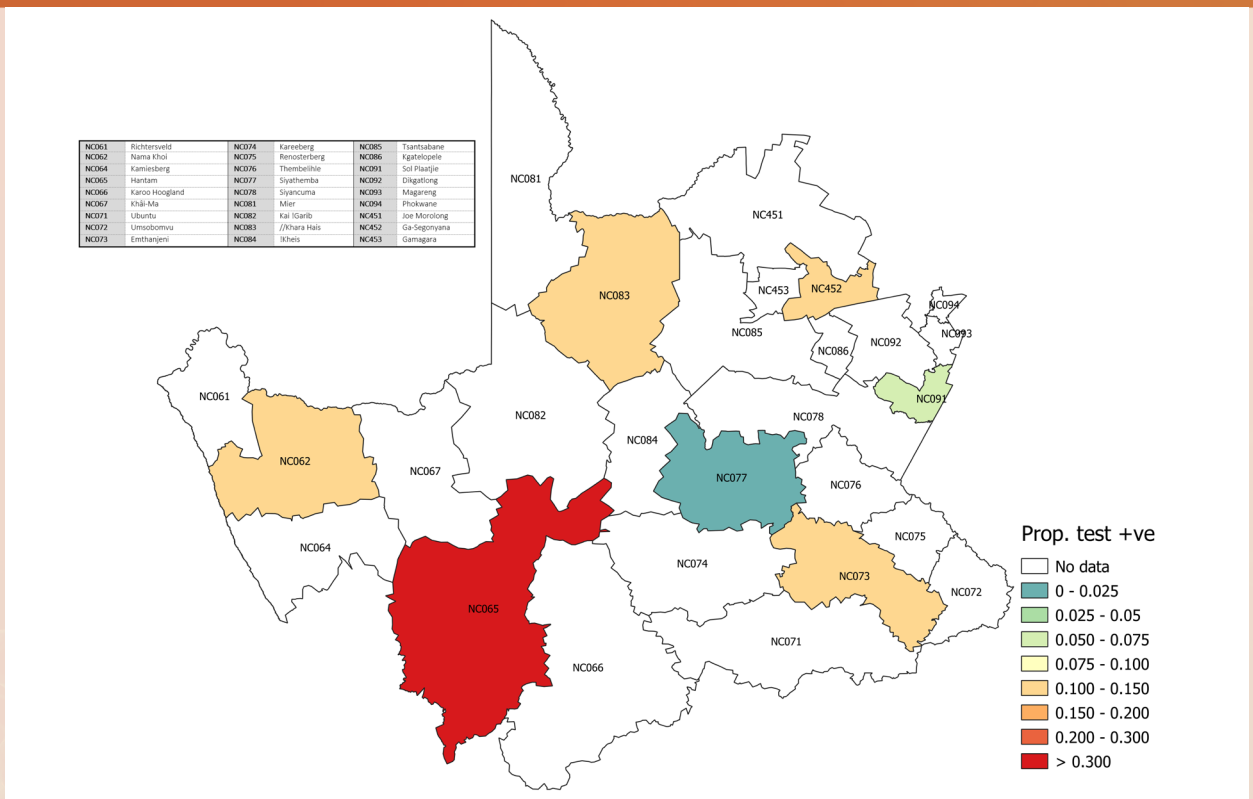

Figure 10. Proportion testing positive by health sub-district in Northern Cape Province for the week of 13-19 February 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

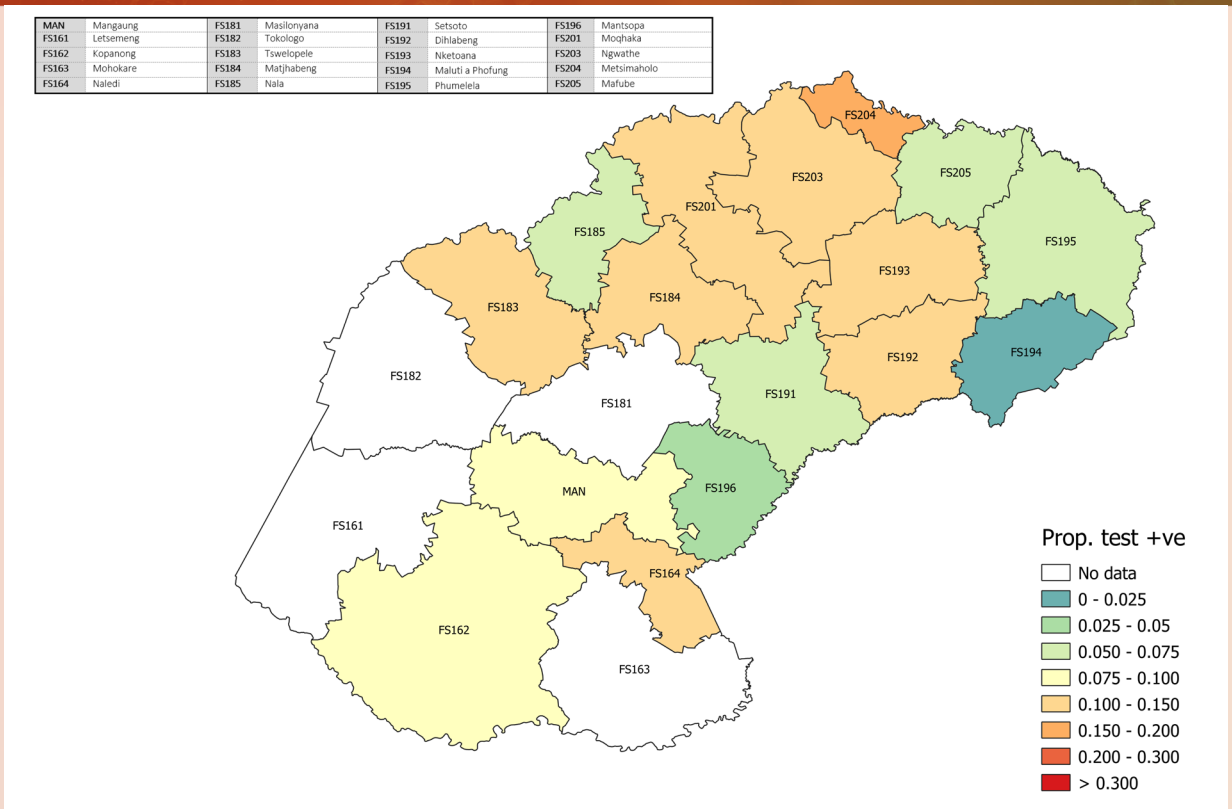

Figure 11. Proportion testing positive by health sub-district in Free State Province for the week of 13-19 February 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

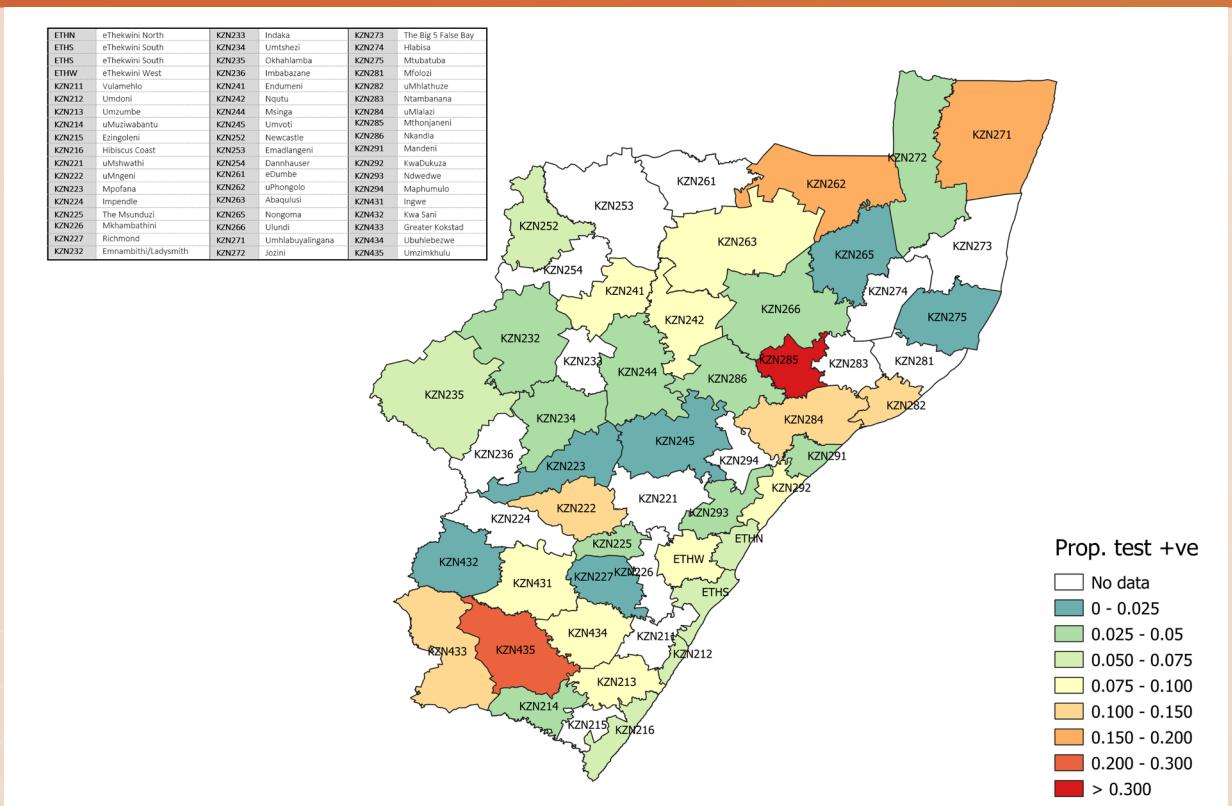

Figure 12. Proportion testing positive by health sub-district in KwaZulu-Natal Province for the week of 13-19 February 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

NW371	Moretele	NW383	Mafikeng	NW396	Lekwa-Teemane
NW372	Madibeng	NW384	Ditsobotla	NW397	Kagisano/Molopo
NW373	Rustenburg	NW385	Ramotshere Moiloa	NW401	Ventersdorp
NW374	Kgetlengrivier	NW392	Naledi	NW402	Tlokwe City Council
NW375	Moses Kotane	NW393	Mamusa	NW403	City of Matlosana
NW381	Ratlou	NW394	Greater Taung	NW404	Maquassi Hills
NW382	Tswaing				

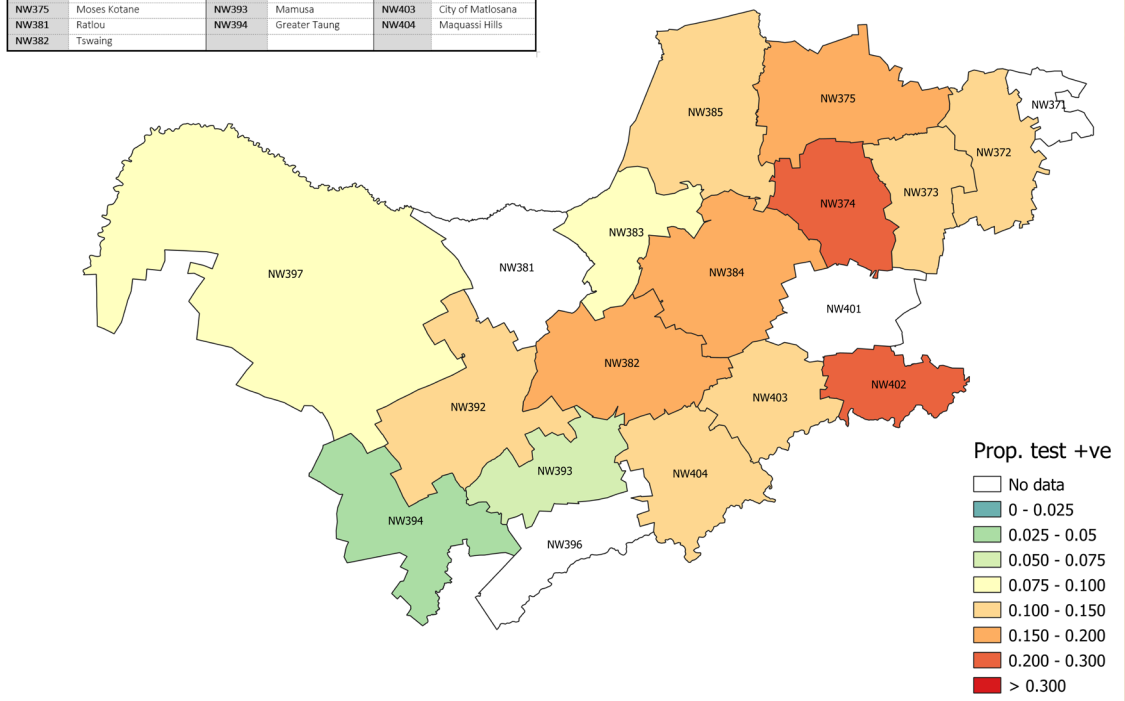

Figure 13. Proportion testing positive by health sub-district in North West Province for the week of 13-19 February 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

EKUE1	Ekurhuleni East 1	GT421	Emfuleni	JHBA	Johannesburg A	TSH1	Tshwane 1
EKUE2	Ekurhuleni East 2	GT422	Midvaal	JHBB	Johannesburg B	TSH2	Tshwane 2
EKUN1	Ekurhuleni North 1	GT423	Lesedi	JHBC	Johannesburg C	TSH3	Tshwane 3
EKUN2	Ekurhuleni North 2	GT481	Mogale City	JHBD	Johannesburg D	TSH4	Tshwane 4
EKUS1	Ekurhuleni South 1	GT482	Randfontein	JHBE	Johannesburg E	TSH5	Tshwane 5
EKUS2	Ekurhuleni South 2	GT483	Westonaria	JHBF	Johannesburg F	TSH6	Tshwane 6
		GT484	Merafong City	JHBG	Johannesburg G	TSH7	Tshwane 7

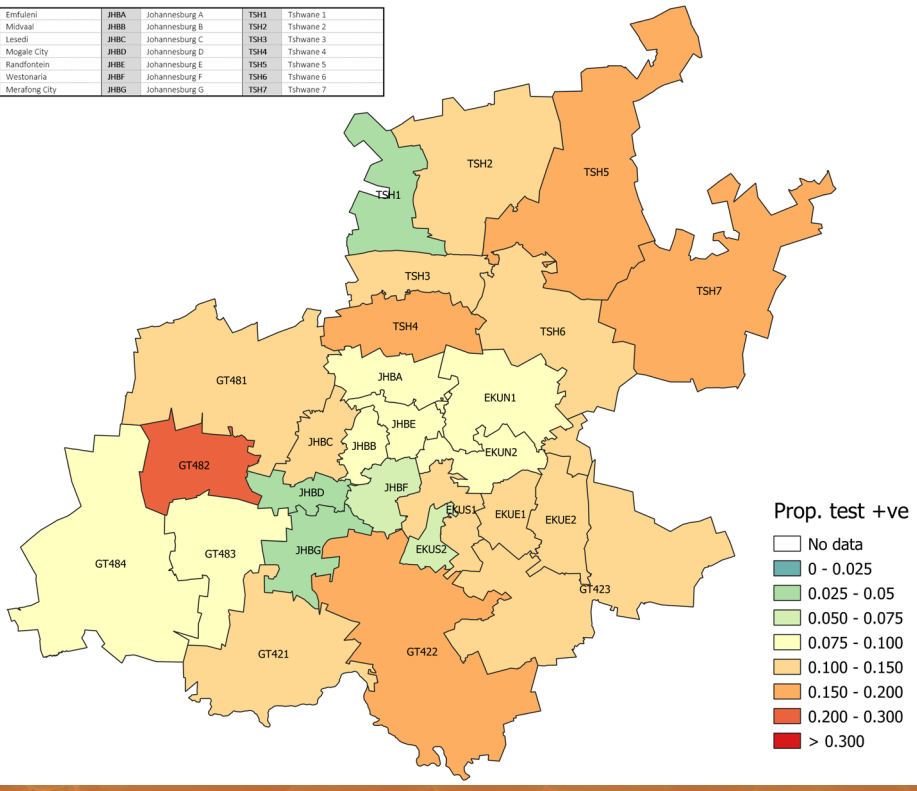

Figure 14. Proportion testing positive by health sub-district in Gauteng Province for the week of 13-19 February 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

MP301	Albert Luthuli	MP307	Govan Mbeki	MP316	Dr JS Moroka
MP302	Msukaligwa	MP311	Victor Khanye	MP321	Thaba Chweu
MP303	Mkhondo	MP312	Emalahleni	MP322	Mbombela
MP304	Pixley Ka Seme	MP313	Steve Tshwete	MP323	Umjindi
MP305	Lekwa	MP314	Emakhazeni	MP324	Nkomazi
MP306	Dipaleseng	MP315	Thembisile	MP325	Bushbuckridge

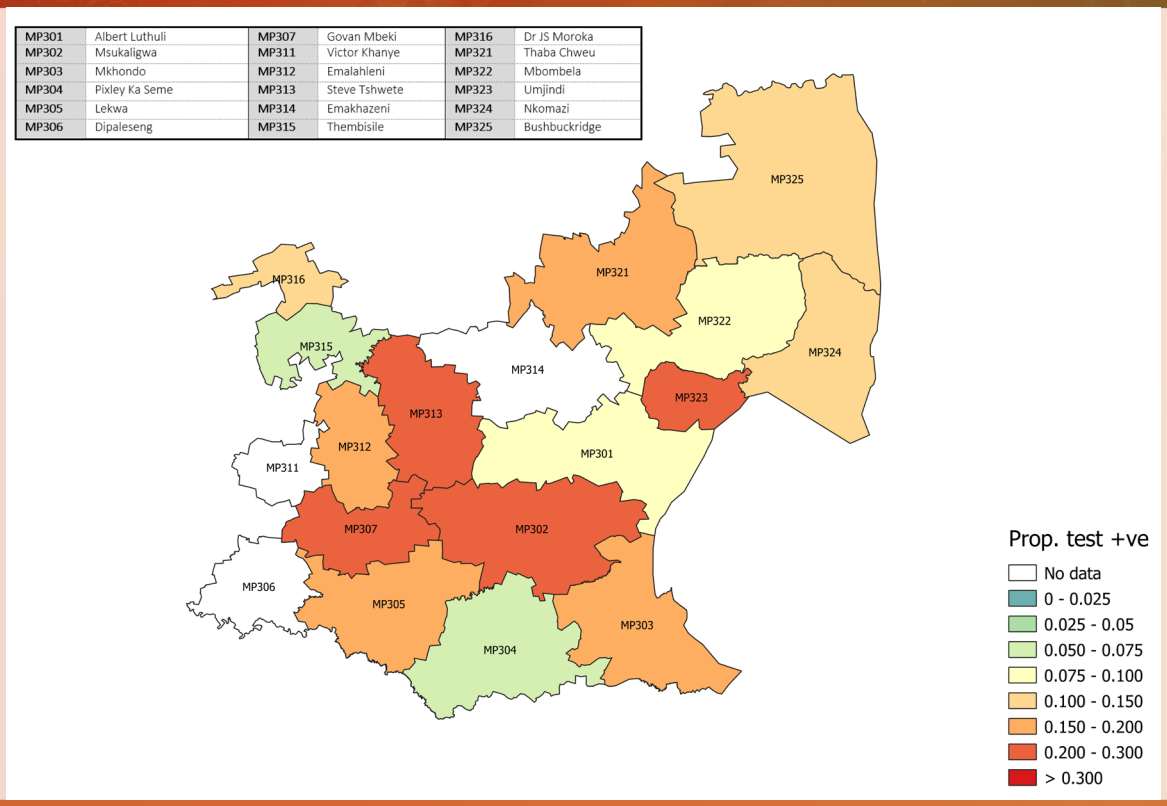

Figure 15. Proportion testing positive by health sub-district in Mpumalanga Province for the week of 13-19 February 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

LIM331	Greater Giyani	LIM351	Blouberg	LIM365	Modimolle
LIM332	Greater Letaba	LIM352	Aganang	LIM366	Bela-Bela
LIM333	Greater Tzaneen	LIM353	Molemole	LIM367	Mogalakwena
LIM334	Ba-Phalaborwa	LIM354	Polokwane	LIM471	Ephraim Mogale
LIM335	Maruleng	LIM355	Lepele-Nkumpi	LIM472	Elias Motsoaledi
LIM341	Musina	LIM361	Thabazimbi	LIM473	Makhuduthamaga
LIM342	Mutale	LIM362	Lephalale	LIM474	Fetakgomo
LIM343	Thulamela	LIM364	Mookgopong	LIM475	Greater Tubatse
LIM344	Makhado				

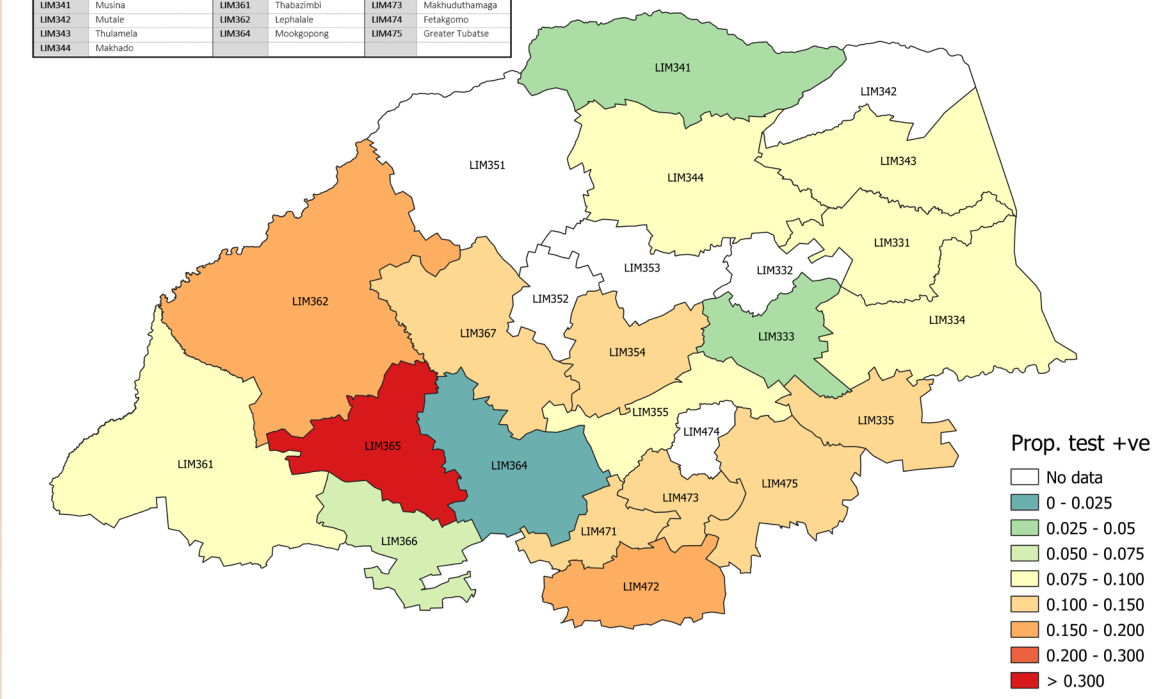

Figure 16. Proportion testing positive by health sub-district in Limpopo Province for the week of 13-19 February 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

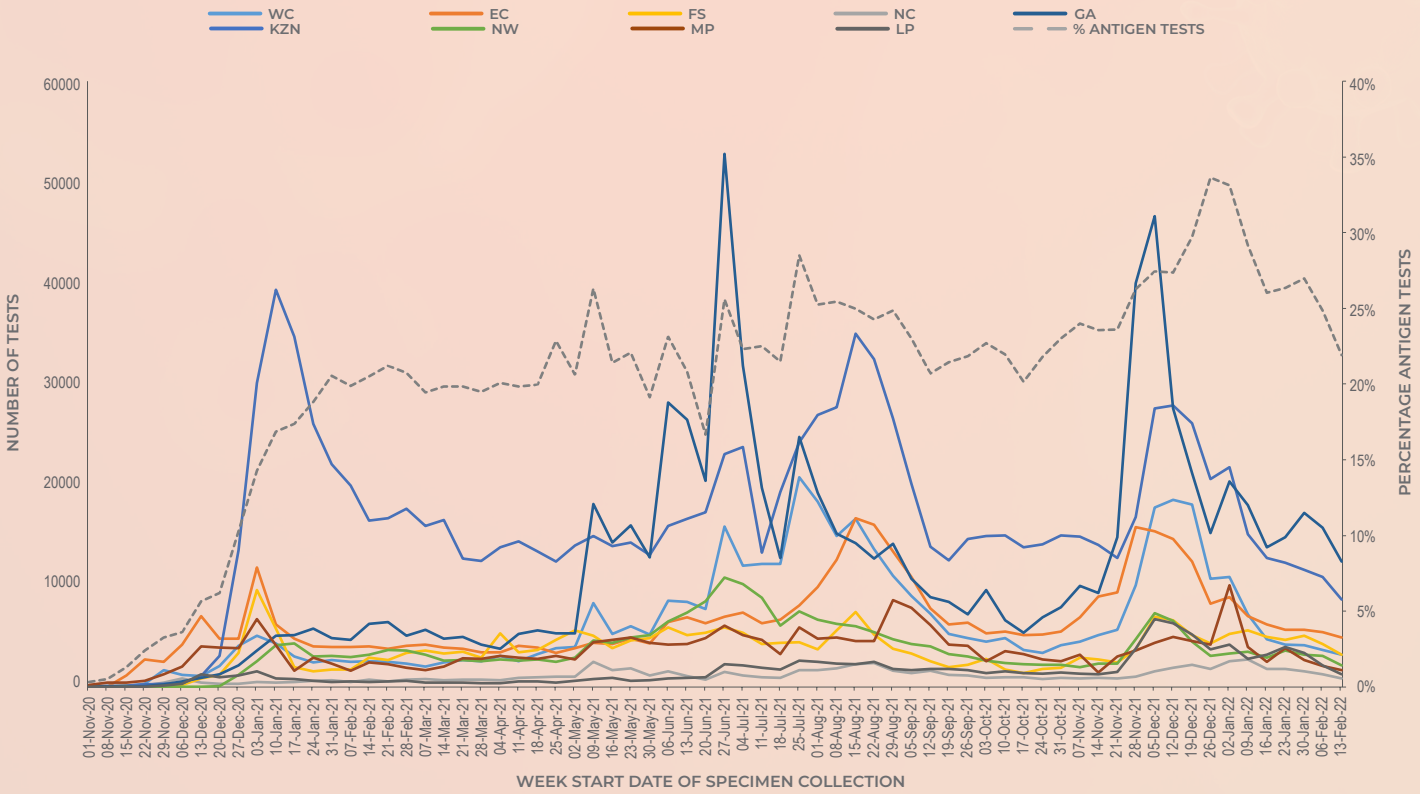

Figure 17. Number of antigen tests by province and overall percentage antigen tests, South Africa, 1 November 2020 – 19 February 2022. WC Western Cape; EC Eastern Cape; FS Free State; KZN KwaZulu-Natal; GA Gauteng; NC Northern Cape; NW North West; MP Mpumalanga; LP Limpopo

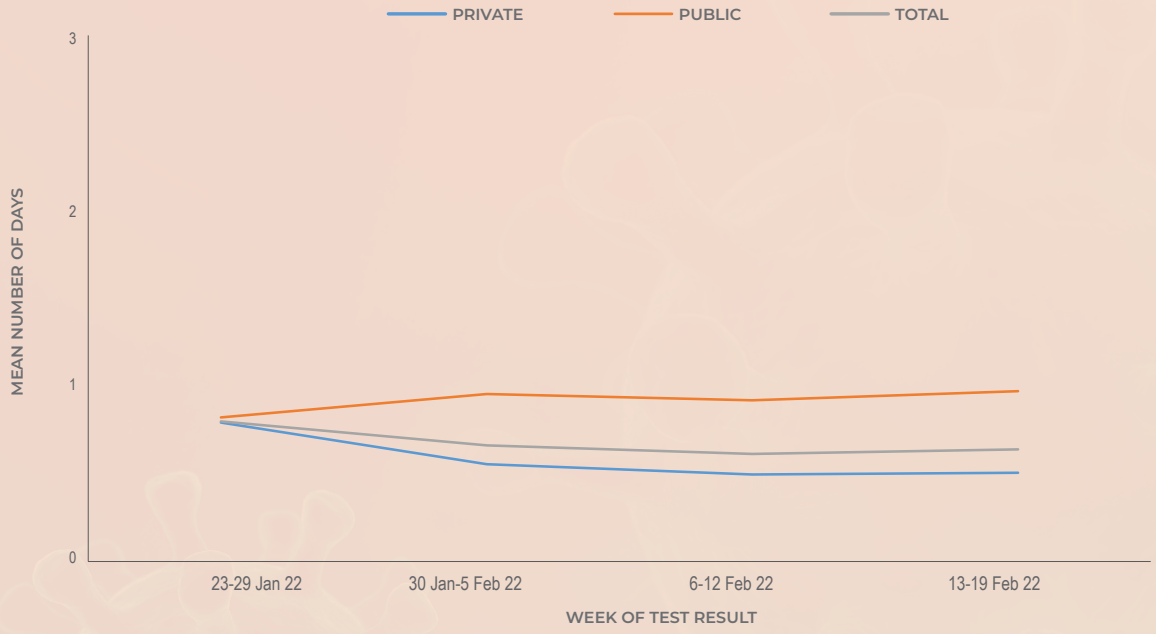

Figure 18. Mean number of days between date of specimen collection and date of test result for PCR tests by week of test result, South Africa, 23 January – 19 February 2022.

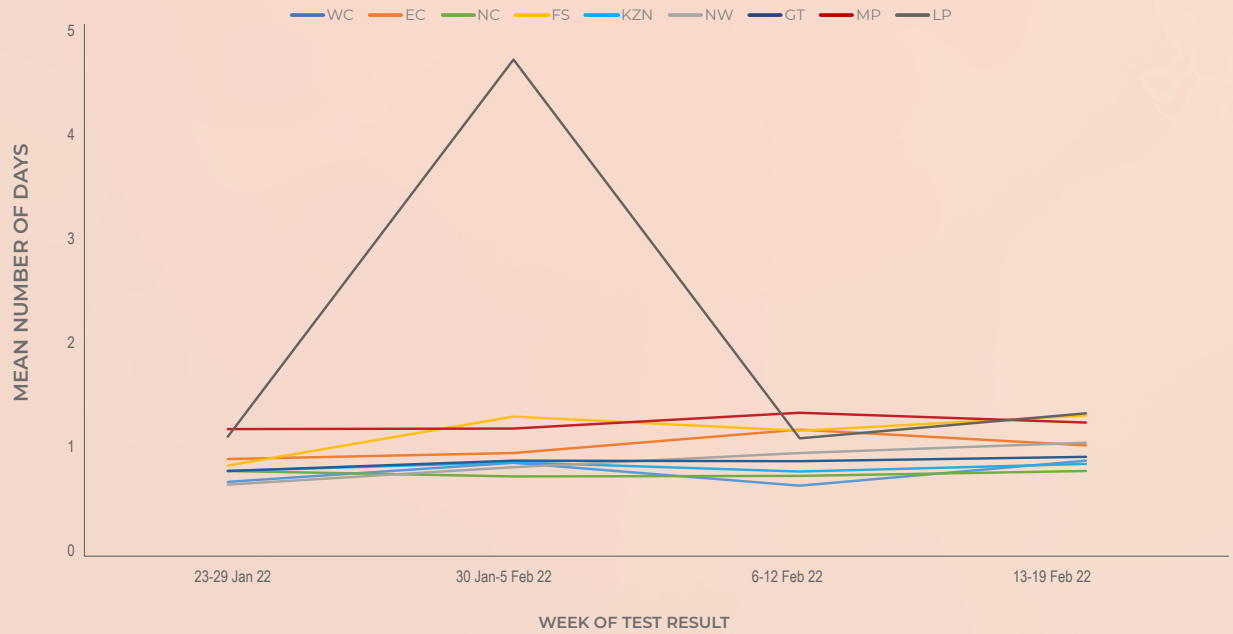

Figure 19. Mean number of days between date of specimen collection and date of test result for PCR tests in the public sector by week of test result and province, South Africa, 23 January – 19 February 2022. WC Western Cape; EC Eastern Cape; FS Free State; KZN KwaZulu-Natal; GT Gauteng; NC Northern Cape; NW North West; MP Mpumalanga; LP Limpopo

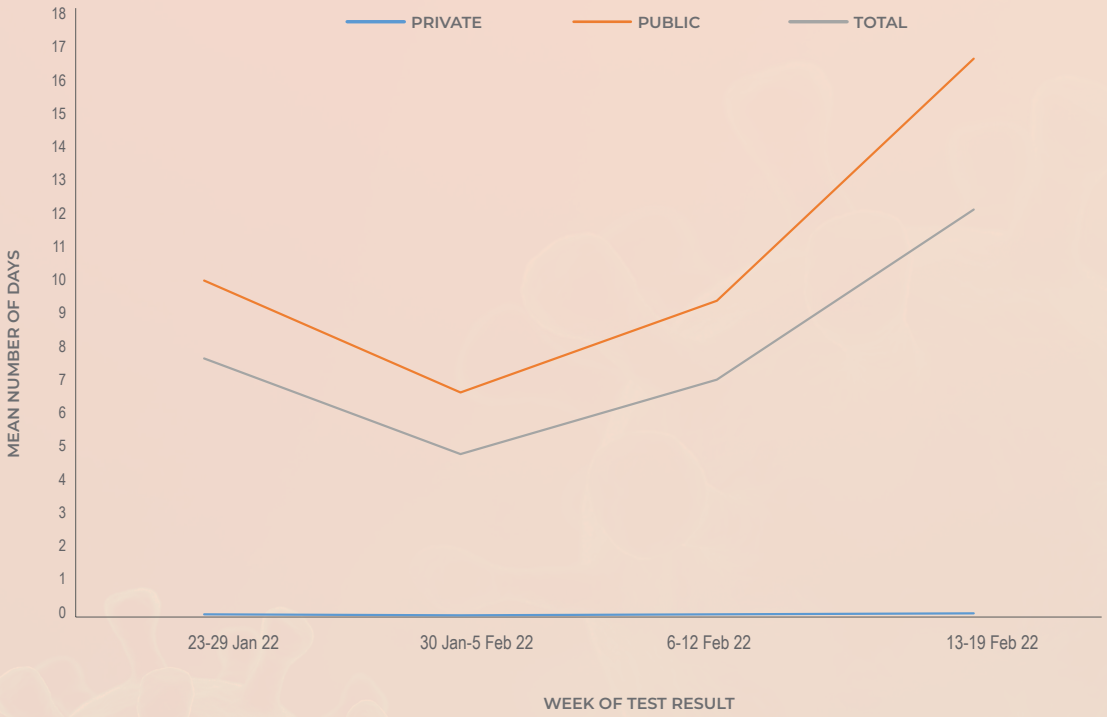

Figure 20. Mean number of days between date of specimen collection and date of test result for antigen tests by week of test result, South Africa, 23 January – 19 February 2022.

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 49 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. Testing rates were calculated using mid-year population estimates from Statistics South Africa and expressed as tests per 100,000 (2019 estimates were used from week 10 – 40 of 2020, 2020 estimates were used from week 41 2021 to week 1 of 2022 and 2021 estimates were used from week 2 of 2022 and onwards). 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 98% of public sector facilities in the country) and private (approximately 81% 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.