COVID-19 TESTING SUMMARY

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

SOUTH AFRICA | WEEK **36** 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 11 September 2021 (Week 36 of 2021).

HIGHLIGHTS

- The number of tests reported in week 36 of 2021 was the lowest weekly number of tests reported since May 2021.
- In week 36 the testing rate decreased in all provinces, and was highest in the Northern Cape (695 per 100,000 persons) and lowest in Limpopo (108 per 100,000 persons).
- In week 36 the percentage testing positive was 12.8%, which was 3.6% lower than the previous week.
- In week 36 compared to the previous week, the percentage testing positive decreased in all provinces.
- The percentage testing positive in week 36 was highest in the Northern Cape (24.7%) province. The percentage testing positive was between 10% and 20% in the Western Cape, Eastern Cape, Free State, KwaZulu-Natal, North West and Mpumalanga provinces, and was less than 10% in Gauteng and Limpopo provinces.
- The format of the weekly testing report has been simplified, and more detailed reports will be produced at regular intervals.

Executive Summary:

- In the period 1 March 2020 through 11 September 2021, 16,963,508 tests for SARS-CoV-2 have been reported nationally: 14,780,479 PCR and 2,183,029 antigen tests.
- The number of tests reported in week 36 of 2021 (n=252,487) was the lowest weekly number of tests reported since May 2021. Gauteng reported the largest proportion of tests (27.1%), followed by KwaZulu-Natal (22.2%) and Western Cape (17.3%).
- The overall testing rate decreased from 541 per 100,000 persons in week 35 to 423 per 100,000 persons in week 36.
- In week 36 the testing rate decreased in all provinces, and was highest in the Northern Cape (695 per 100,000 persons) and lowest in Limpopo (108 per 100,000 persons).
- Testing rates in week 36 were highest in the ≥80 years age group (795 per 100,000 persons).
- In week 36 the percentage testing positive was 12.8%, which was 3.6% lower than the previous week (16.5%, P<0.001).
- In the past week the percentage testing positive decreased by 3.8% in the public sector (19.3% in week 35 to 15.5% in week 36, P<0.001) and by 2.8% in the private sector (13.1% in week 35 to 10.3% in week 36, P<0.001).
- In week 36 compared to the previous week, the percentage testing positive decreased in all provinces.
- The percentage testing positive in week 36 was highest in the Northern Cape (24.7%) province. The percentage testing positive was between 10% and 20% in the Western Cape, Eastern Cape, Free State, KwaZulu-Natal, North West and Mpumalanga provinces, and was less than 10% in Gauteng and Limpopo provinces.
- Overall, the percentage testing positive was highest in individuals aged 10-14 years (17.9%).
- Health sub-districts showing the greatest percentage testing positive were concentrated in the Northern Cape (n=8) and Western Cape (n=6) provinces.
- Antigen tests accounted for 18.4% (46,514/252,487) of tests reported in week 36, however the number of antigen tests is likely underestimated due to under-reporting and delayed reporting of antigen tests.
- In week 36 the public sector accounted for 75.7% of antigen tests performed. The majority of antigen tests have been reported from KwaZulu-Natal (33.5%) and Gauteng (18.9%) provinces. In the past few weeks KwaZulu-Natal has reported the highest weekly number of antigen tests, although a decrease has been observed in recent weeks.
- The mean turnaround time for PCR tests reported in week 36 was 1.5 days; 2.1 days in the public sector and 0.7 days in the private sector. Turnaround times for public sector PCR tests increased in Limpopo, North West and Gauteng provinces, and were >2 days in the Eastern Cape, Free State, Mpumalanga and Limpopo provinces in the past week.
- The mean turnaround time for antigen tests reported in week 36 increased to 9.3 days in the public sector and 1.0 day in the private sector.

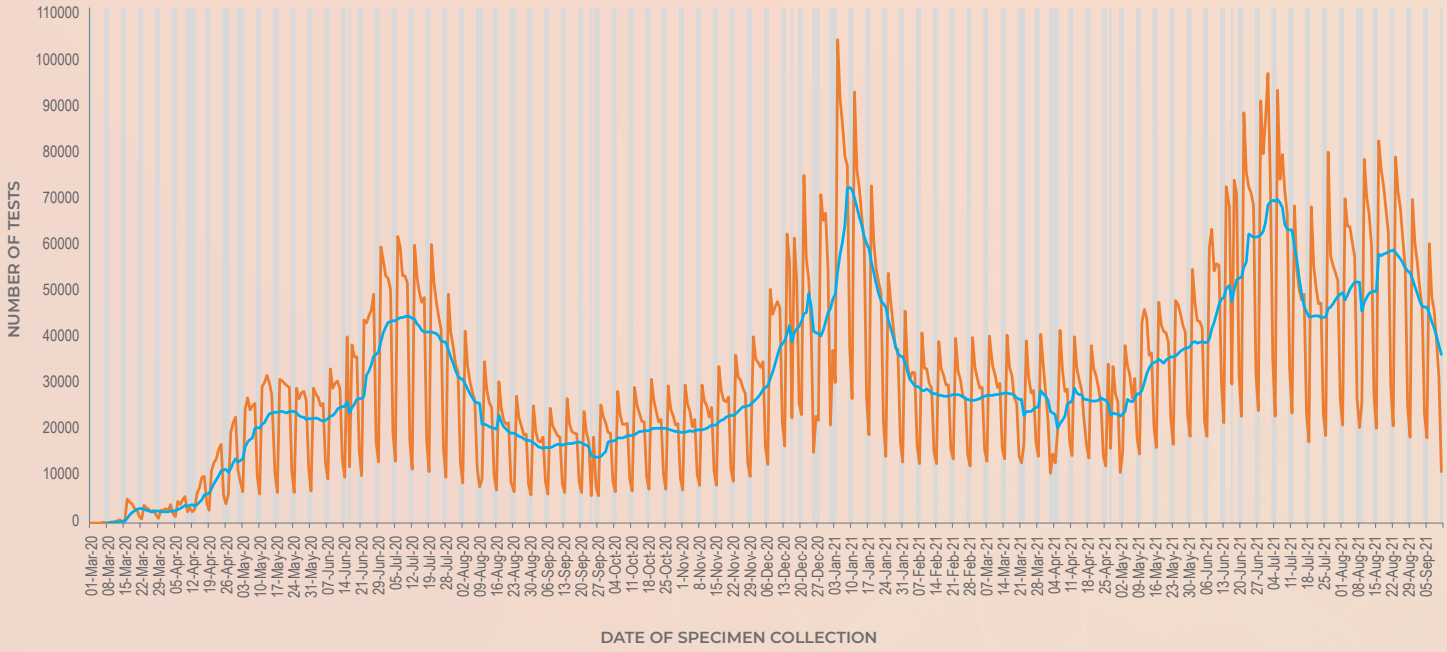

Figure 1. Number of SARS-CoV-2 tests reported by date of specimen collection, South Africa, 1 March 2020 – 11 September 2021. Blue line shows the 7-day moving average of the number of tests reported. Grey bars highlight weekend days and public holidays

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

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)
1	03-Jan-21	501163 (3.0)	151033	30.1
2	10-Jan-21	417943 (2.5)	104794	25.1
3	17-Jan-21	327383 (1.9)	63257	19.3
4	24-Jan-21	249500 (1.5)	34638	13.9
5	31-Jan-21	203640 (1.2)	22361	11.0
6	07-Feb-21	193269 (1.1)	16469	8.5
7	14-Feb-21	190619 (1.1)	12182	6.4
8	21-Feb-21	184650 (1.1)	10382	5.6
9	28-Feb-21	189418 (1.1)	8685	4.6
10	07-Mar-21	193364 (1.1)	8324	4.3
11	14-Mar-21	185471 (1.1)	8151	4.4
12	21-Mar-21	172996 (1.0)	7351	4.2
13	28-Mar-21	163919 (1.0)	7060	4.3
14	04-Apr-21	180641 (1.1)	7289	4.0
15	11-Apr-21	184576 (1.1)	8843	4.8
16	18-Apr-21	184838 (1.1)	9465	5.1
17	25-Apr-21	159969 (0.9)	9179	5.7
18	02-May-21	193822 (1.1)	13450	6.9
19	09-May-21	239737 (1.4)	19915	8.3
20	16-May-21	248107 (1.5)	24191	9.8
21	23-May-21	261801 (1.5)	29670	11.3
22	30-May-21	269690 (1.6)	35939	13.3
23	06-Jun-21	334676 (2.0)	58802	17.6
24	13-Jun-21	365497 (2.2)	86581	23.7
25	20-Jun-21	427683 (2.5)	116616	27.3
26	27-Jun-21	482728 (2.8)	143673	29.8
27	04-Jul-21	437523 (2.6)	139224	31.8
28	11-Jul-21	315069 (1.9)	99188	31.5
29	18-Jul-21	307048 (1.8)	86661	28.2
30	25-Jul-21	341825 (2.0)	86600	25.3
31	01-Aug-21	360418 (2.1)	86164	23.9
32	08-Aug-21	346344 (2.0)	81492	23.5
33	15-Aug-21	407373 (2.4)	93242	22.9
34	22-Aug-21	376821 (2.2)	76357	20.3
35	29-Aug-21	322788 (1.9)	53154	16.5
36	05-Sep-21	252487 (1.5)	32444	12.8
	Total	**16,963,508 (100.0)**	**3,037,723**	

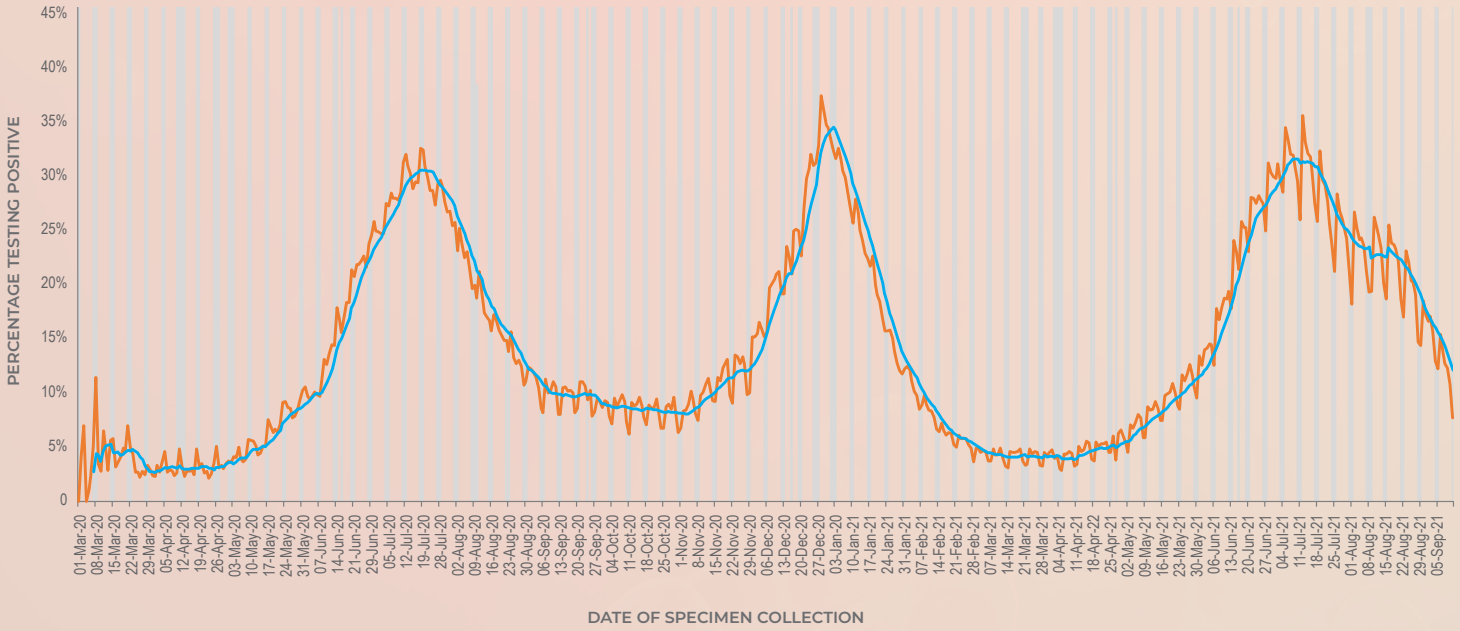

Figure 2. Percentage of tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March 2020 – 11 September 2021. Blue line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

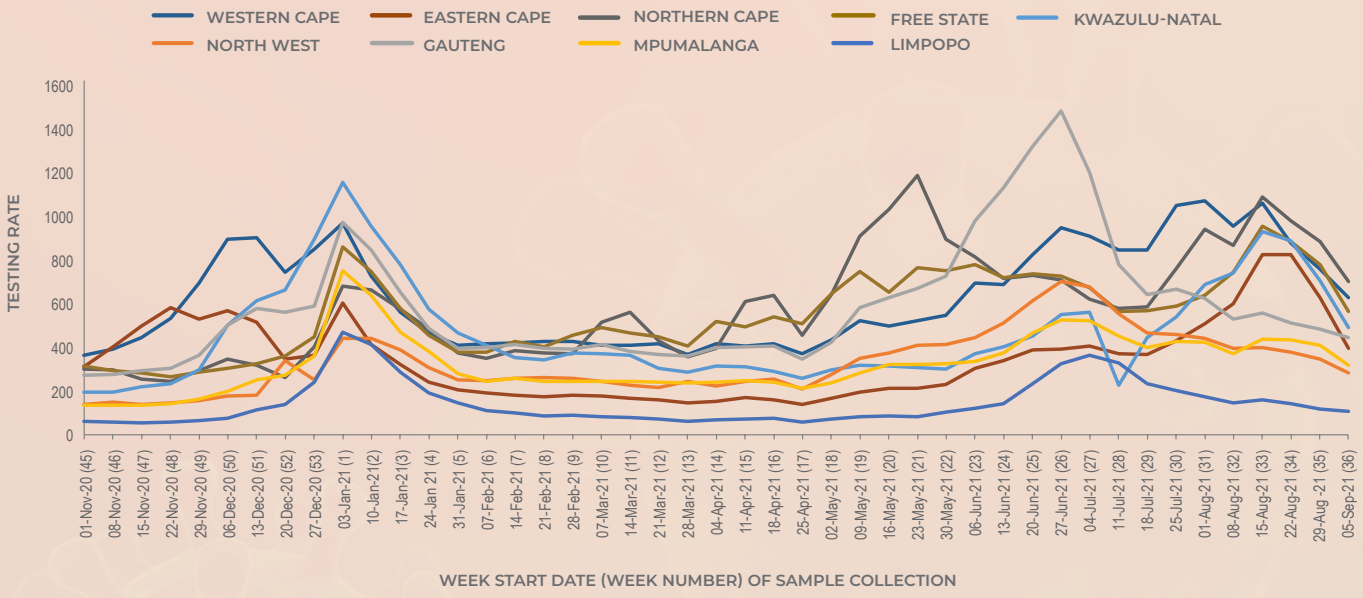

Figure 3. Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 1 November 2020 – 11 September 2021

Table 2. Weekly number of tests and positive tests reported by province, South Africa, 22 August – 11 September 2021

		22-28 Aug 2021		29 Aug – 4 Sep 2021		5-11 September 2021			
Province	**Population[a]**	**No. of tests**	**No. positive tests (%)**	**No. of tests**	**No. positive tests (%)**	**No. of tests**	**No. positive tests (%)**	**Tests per 100,000 persons**	**Change in percentage positive[b]**
Western Cape	7005741	60838	16340 (26.9)	52542	10995 (20.9)	43584	7103 (16.3)	622	-4.6%
Eastern Cape	6734001	54843	12325 (22.5)	41791	8429 (20.2)	26446	4719 (17.8)	393	-2.3%
Northern Cape	1292786	12494	3632 (29.1)	11299	3048 (27.0)	8982	2219 (24.7)	695	-2.3%
Free State	2928903	25586	6183 (24.2)	22576	4934 (21.9)	16396	3106 (18.9)	560	-2.9%
KwaZulu-Natal	11531628	101021	22354 (22.1)	80323	15142 (18.9)	55999	8123 (14.5)	486	-4.3%
North West	4108816	15401	2939 (19.1)	14097	2426 (17.2)	11573	1619 (14.0)	282	-3.2%
Gauteng	15488137	78309	7240 (9.2)	74278	4720 (6.4)	68412	3361 (4.9)	442	-1.4%
Mpumalanga	4679786	20039	3967 (19.8)	18961	2554 (13.5)	14765	1566 (10.6)	316	-2.9%
Limpopo	5852553	8279	1376 (16.6)	6898	902 (13.1)	6306	627 (9.9)	108	-3.1%
Unknown		11	1 (9.1)	23	4 (17.4)	24	1 (4.2)		
Total	**59622350**	**376821**	**76357 (20.3)**	**322788**	**53154 (16.5)**	**252487**	**32444 (12.8)**	**423**	**-3.6%**

a 2020 Mid-year population Statistics SA

b Current week compared to previous week

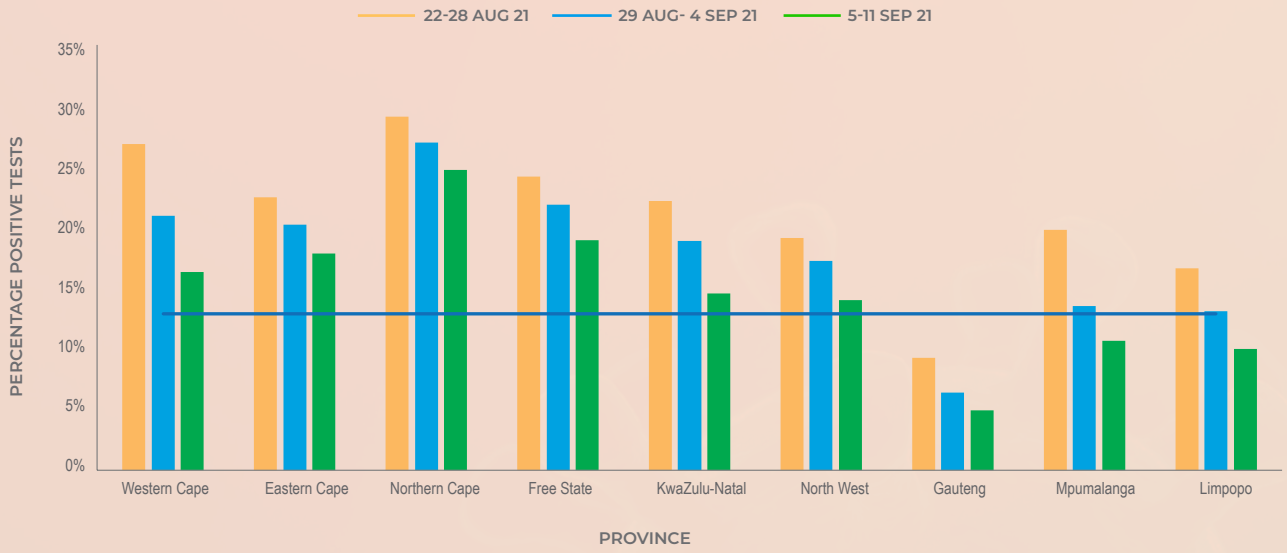

Figure 4. Weekly percentage testing positive by province, South Africa, 22 August – 11 September 2021. The horizontal blue line shows the national mean for week 36, beginning 5 September 2021

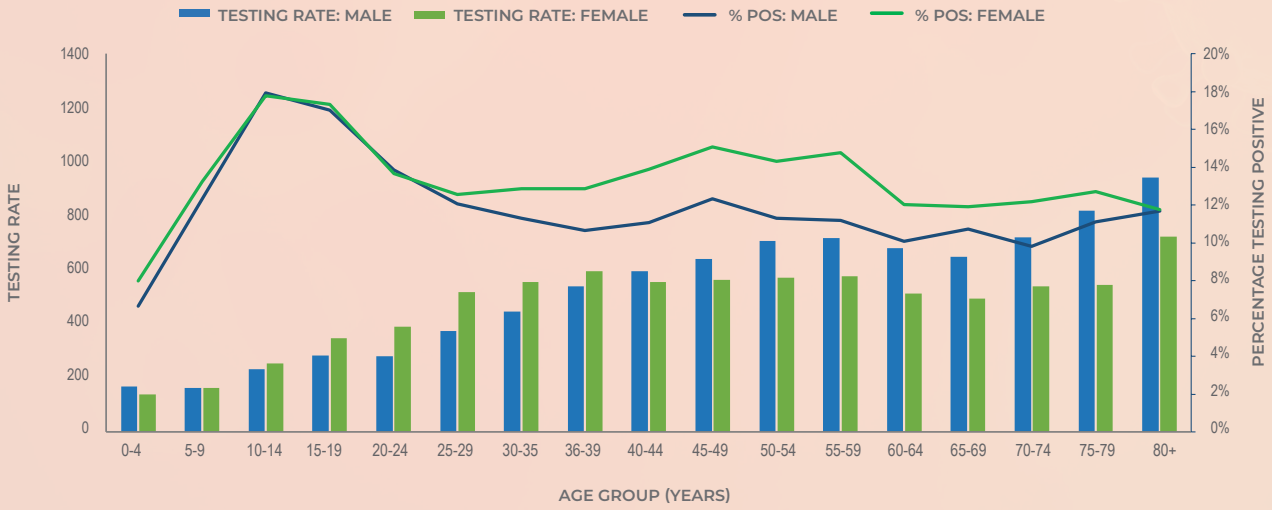

Figure 5. Testing rates per 100,000 persons and percentage testing positive by age group and sex, South Africa, week 36, 5-11 September 2021

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

Health district or sub-district	Province	PTP (95% CI)	Previous week
Kareeberg	Northern Cape	0.488 (0.345-0.631)	0.377 (0.284-0.469)
Ngqushwa	Eastern Cape	0.438 (0.300-0.576)	0.150 (0.112-0.188)
Greater Taung	North West	0.422 (0.284-0.560)	0.340 (0.247-0.434)
Lekwa-Teemane	North West	0.401 (0.291-0.511)	0.358 (0.269-0.448)
Ubuntu	Northern Cape	0.390 (0.287-0.493)	0.375 (0.305-0.446)
Kai Garib	Northern Cape	0.387 (0.309-0.465)	0.412 (0.359-0.466)
Bergrivier	Western Cape	0.383 (0.315-0.451)	0.395 (0.333-0.457)
Cederberg	Western Cape	0.364 (0.293-0.435)	0.409 (0.348-0.470)
Kheis	Northern Cape	0.356 (0.261-0.450)	0.397 (0.302-0.491)
Cape Agulhas	Western Cape	0.350 (0.285-0.415)	0.367 (0.310-0.424)
Maquassi Hills	North West	0.339 (0.302-0.375)	0.386 (0.352-0.421)
Bitou	Western Cape	0.327 (0.282-0.371)	0.348 (0.302-0.394)
Hessequa	Western Cape	0.326 (0.269-0.383)	0.312 (0.269-0.354)
Magareng	Northern Cape	0.317 (0.243-0.391)	0.408 (0.337-0.478)
Amahlathi	Eastern Cape	0.316 (0.229-0.403)	0.223 (0.194-0.252)
Nama Khoi	Northern Cape	0.309 (0.274-0.344)	0.317 (0.284-0.349)
Mtubatuba	KwaZulu-Natal	0.307 (0.252-0.363)	0.267 (0.232-0.302)
Sakhisizwe	Eastern Cape	0.306 (0.185-0.427)	0.269 (0.208-0.330)
Phokwane	Northern Cape	0.304 (0.247-0.360)	0.284 (0.237-0.331)
Tswelopele	Free State	0.302 (0.242-0.361)	0.343 (0.301-0.385)
Letsemeng	Free State	0.301 (0.210-0.392)	0.287 (0.224-0.349)
Nala	Free State	0.299 (0.216-0.383)	0.291 (0.223-0.359)
Oudtshoorn	Western Cape	0.299 (0.267-0.331)	0.288 (0.261-0.314)
Hantam	Northern Cape	0.295 (0.249-0.341)	0.258 (0.222-0.294)
Ditsobotla	North West	0.288 (0.200-0.377)	0.326 (0.253-0.398)

95% CI: 95% confidence interval; PTP: adjusted positive test proportion; Elements marked in red have current week proportions testing positive that are higher than, and CIs that do not overlap with, the previous week proportions and CIs. Elements marked in blue have current week proportions testing positive that are lower than, and CIs that do not overlap with, the previous week proportions and CIs.

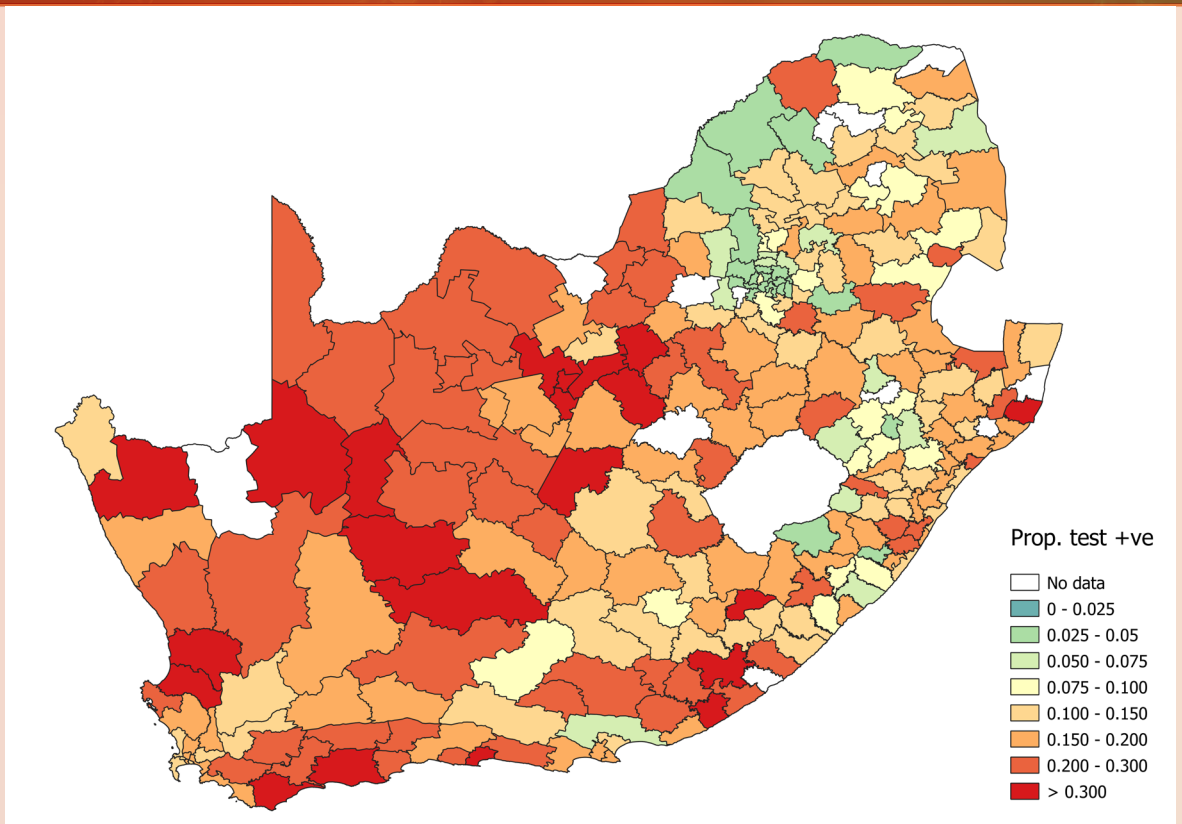

Figure 6. Proportion testing positive by health sub-district in South Africa for the week of 5-11 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

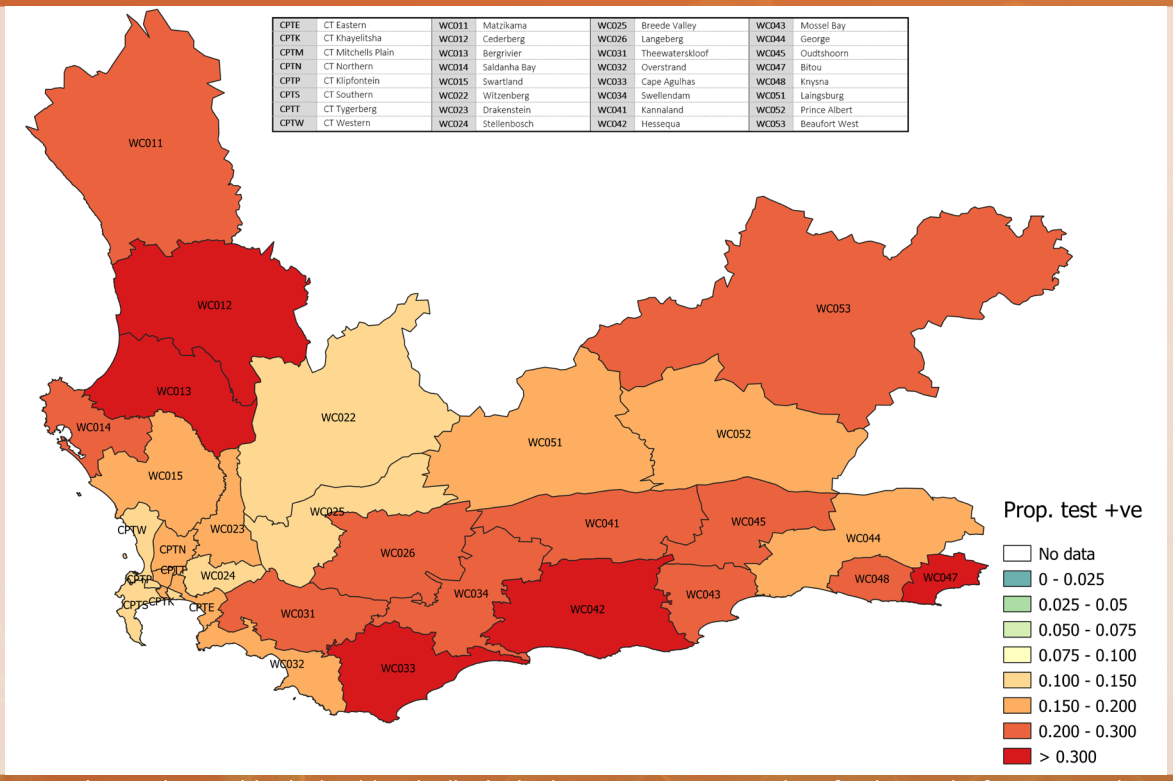

Figure 7. Proportion testing positive by health sub-district in the Western Cape Province for the week of 5-11 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%

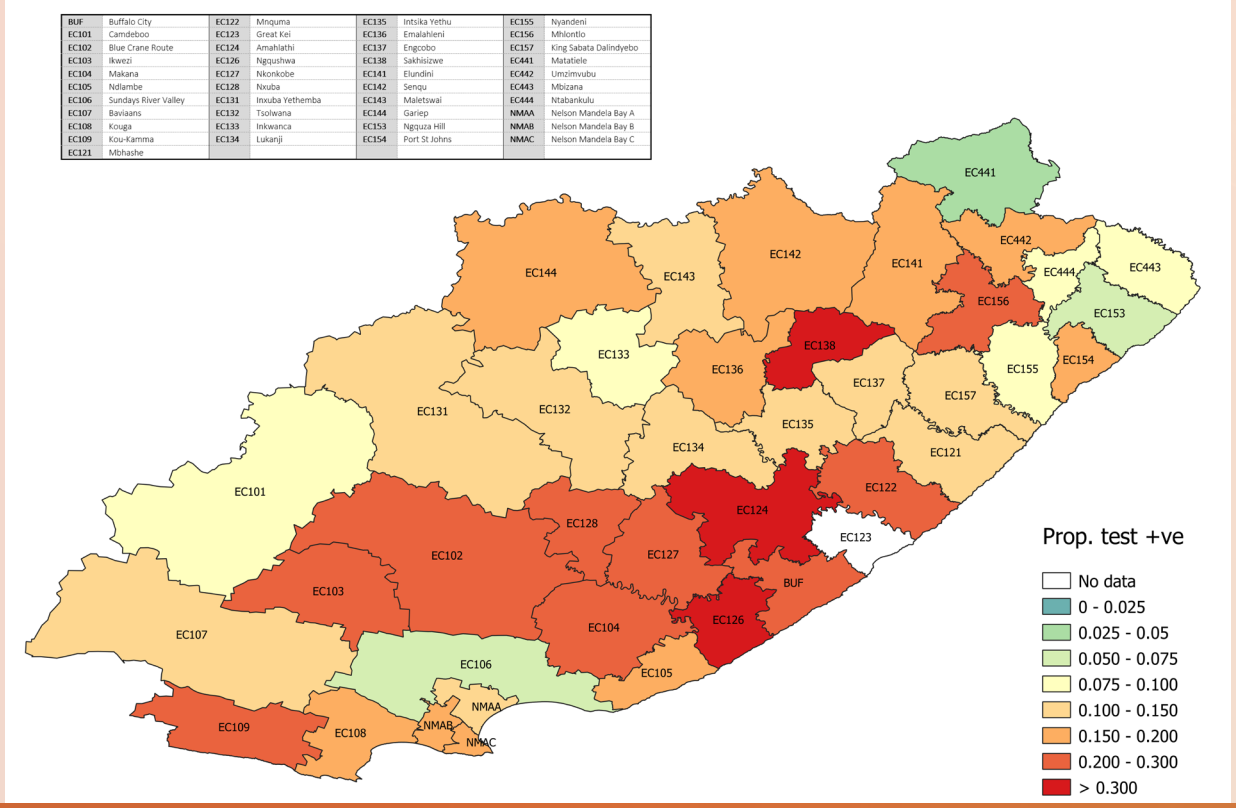

Figure 8. Proportion testing positive by health sub-district in the Eastern Cape Province for the week of 5-11 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

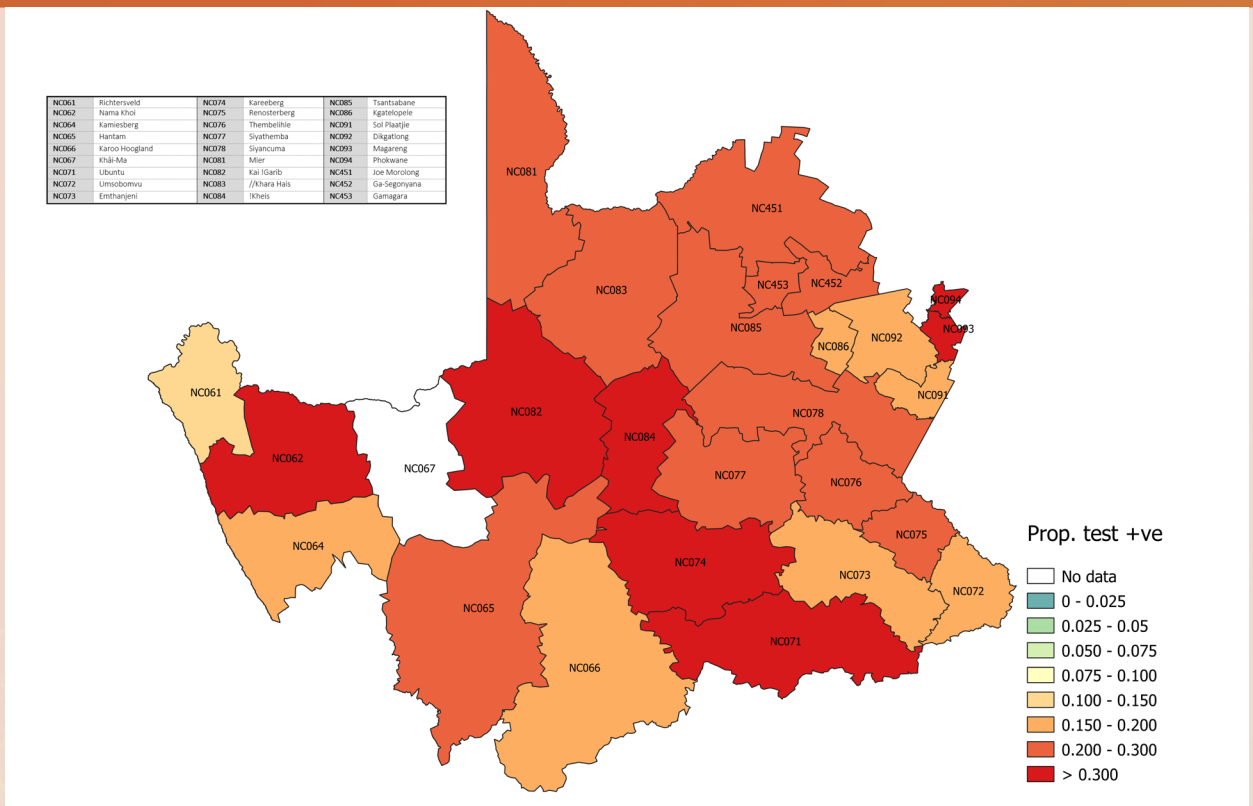

Figure 9. Proportion testing positive by health sub-district in Northern Cape Province for the week of 5-11 September. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

MAN	Mangaung	FS181	Masilonyana	FS191	Setsoto	FS196	Mantsopa
FS161	Letsemeng	FS182	Tokologo	FS192	Dihlabeng	FS201	Moqhaka
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

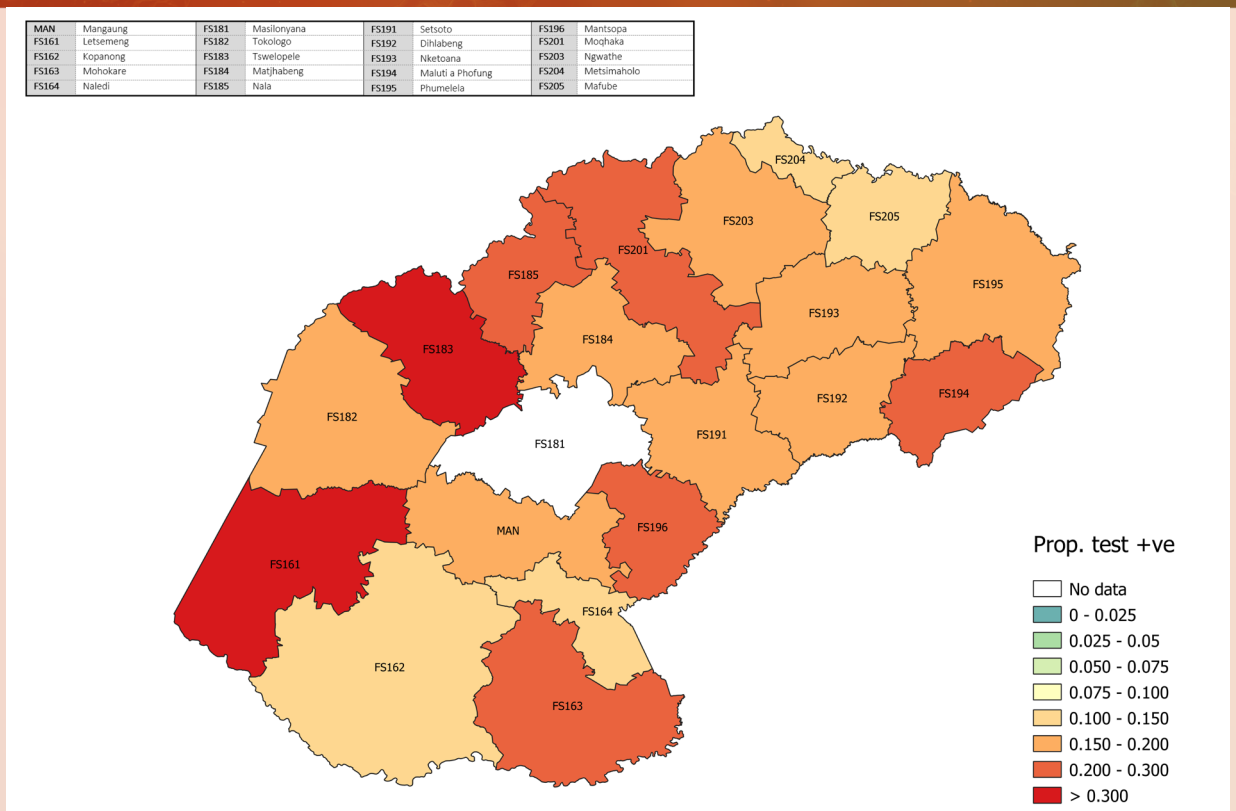

Figure 10. Proportion testing positive by health sub-district in Free State Province for the week of 5-11 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

ETHN	eThekwini North	KZN233	Indaka	KZN273	The Big 5 False Bay
ETHS	eThekwini South	KZN234	Umtshezi	KZN274	Hlabisa
ETHS	eThekwini South	KZN235	Okhahlamba	KZN275	Mtubatuba
ETHW	eThekwini West	KZN236	Imbabazane	KZN281	Mfolozi
KZN211	Vulamehlo	KZN241	Endumeni	KZN282	uMhlathuze
KZN212	Umdoni	KZN242	Nquthu	KZN283	Ntambanana
KZN213	Umzumbe	KZN244	Msinga	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	Mpofana	KZN262	uPhongolo	KZN294	Maphumulo
KZN224	Impendle	KZN263	Abaqulusi	KZN431	Ingwe
KZN225	The Msunduzi	KZN265	Nongoma	KZN432	Kwa Sani
KZN226	Mkhambathini	KZN266	Ulundi	KZN433	Greater Kokstad
KZN227	Richmond	KZN271	Umhlabuyalingana	KZN434	Ubuhlebezwe
KZN232	Emnambithi/Ladysmith	KZN272	Jozini	KZN435	Umzimkhulu

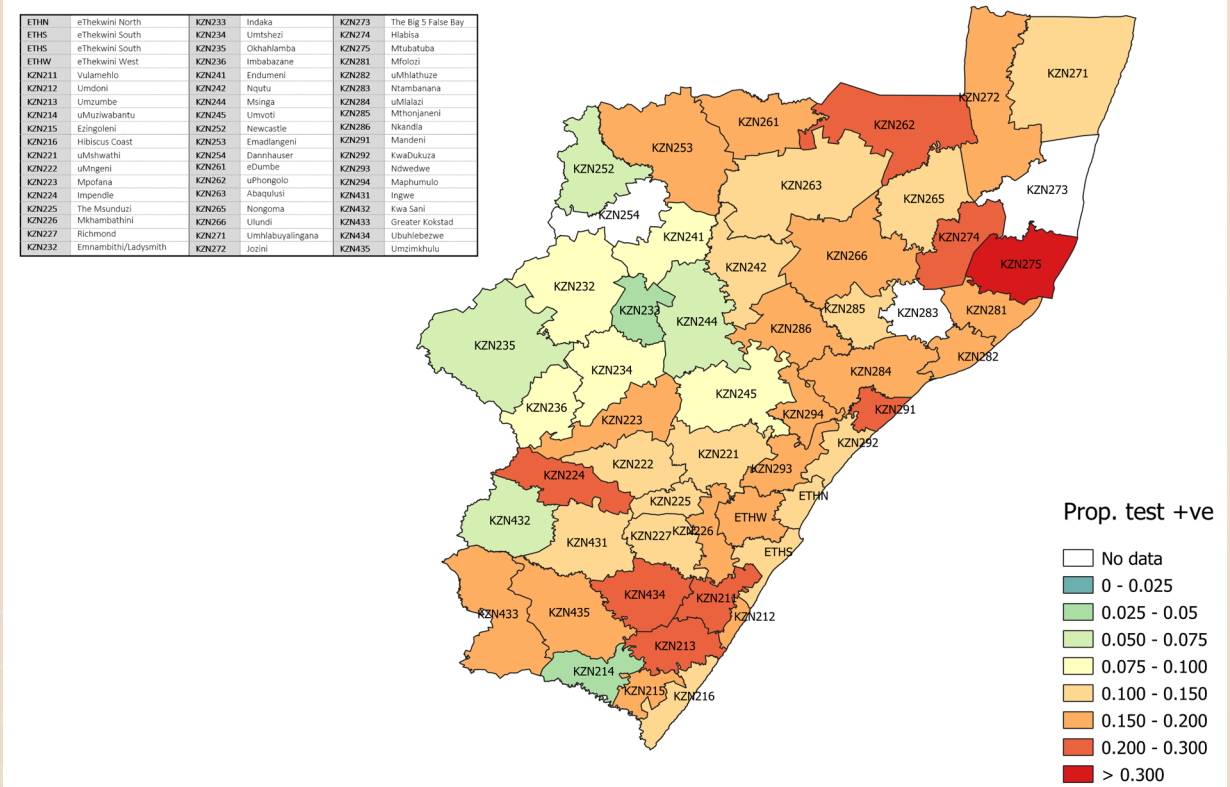

Figure 11. Proportion testing positive by health sub-district in KwaZulu-Natal Province for the week of 5-11 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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				

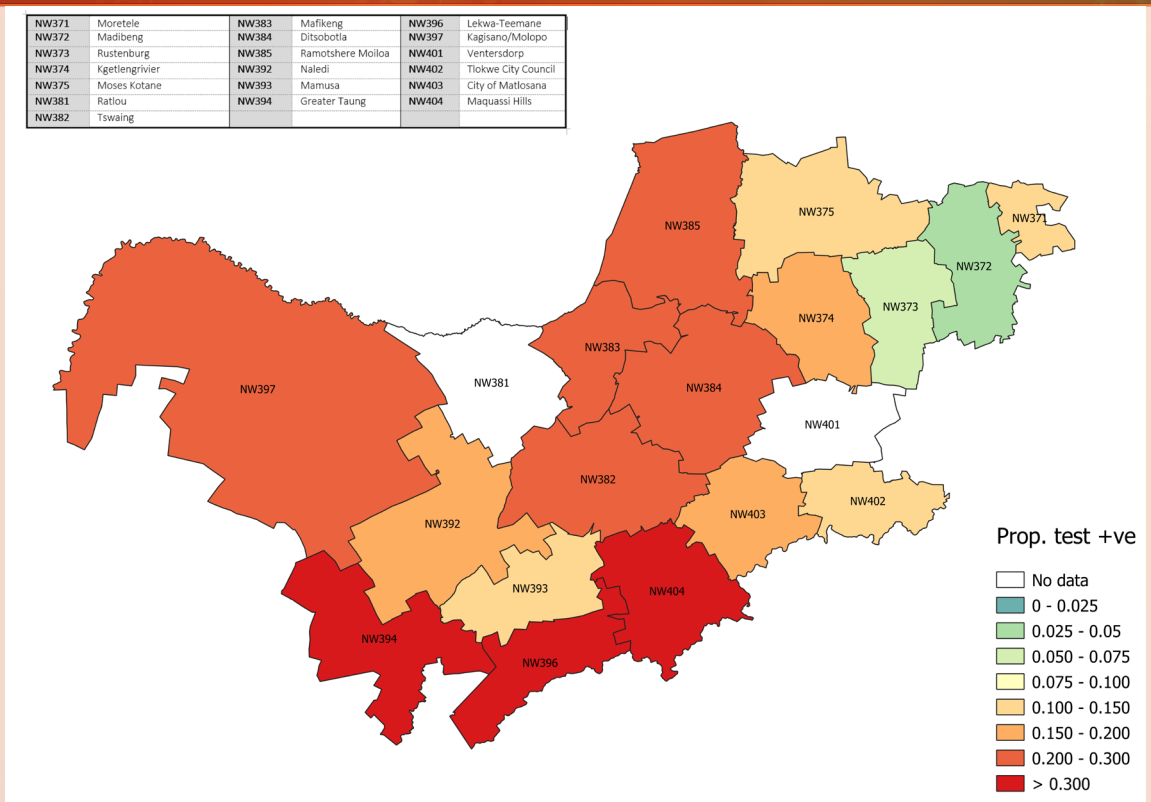

Figure 12. Proportion testing positive by health sub-district in North West Province for the week of 5-11 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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

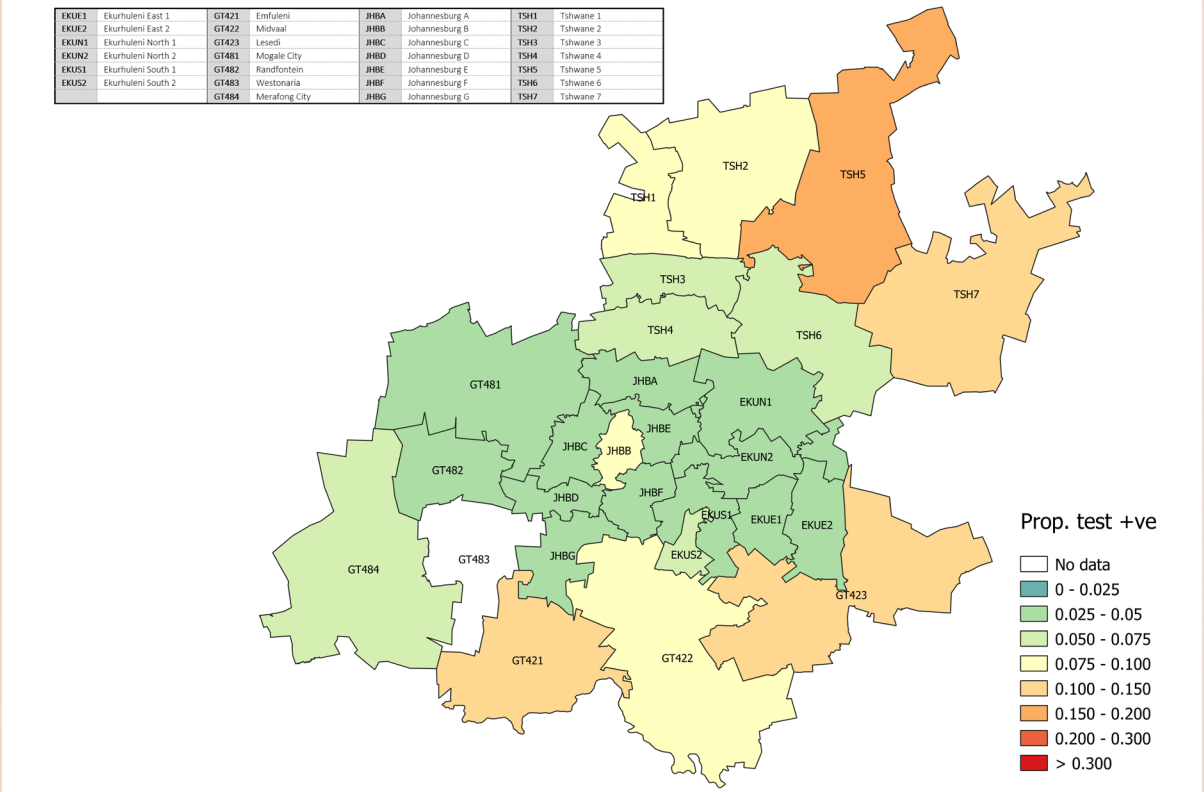

Figure 13. Proportion testing positive by health sub-district in Gauteng Province for the week of 5-11 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

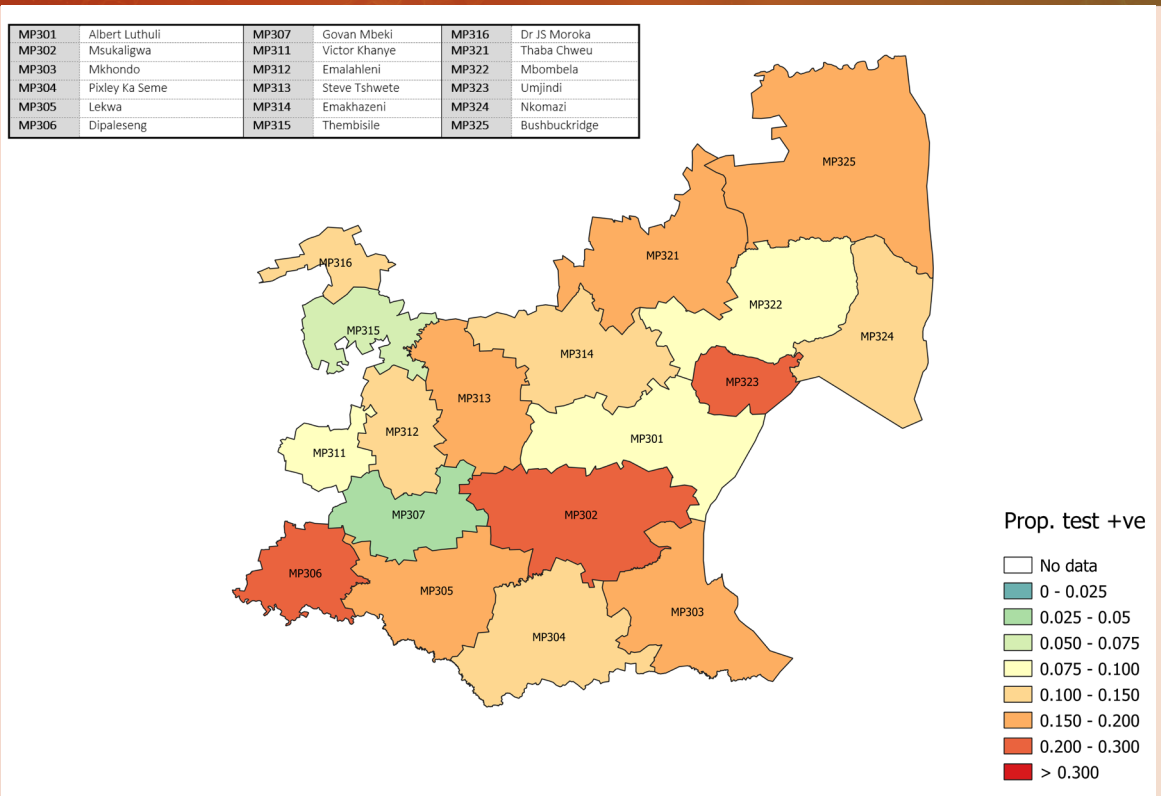

Figure 14. Proportion testing positive by health sub-district in Mpumalanga Province for the week of 5-11 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

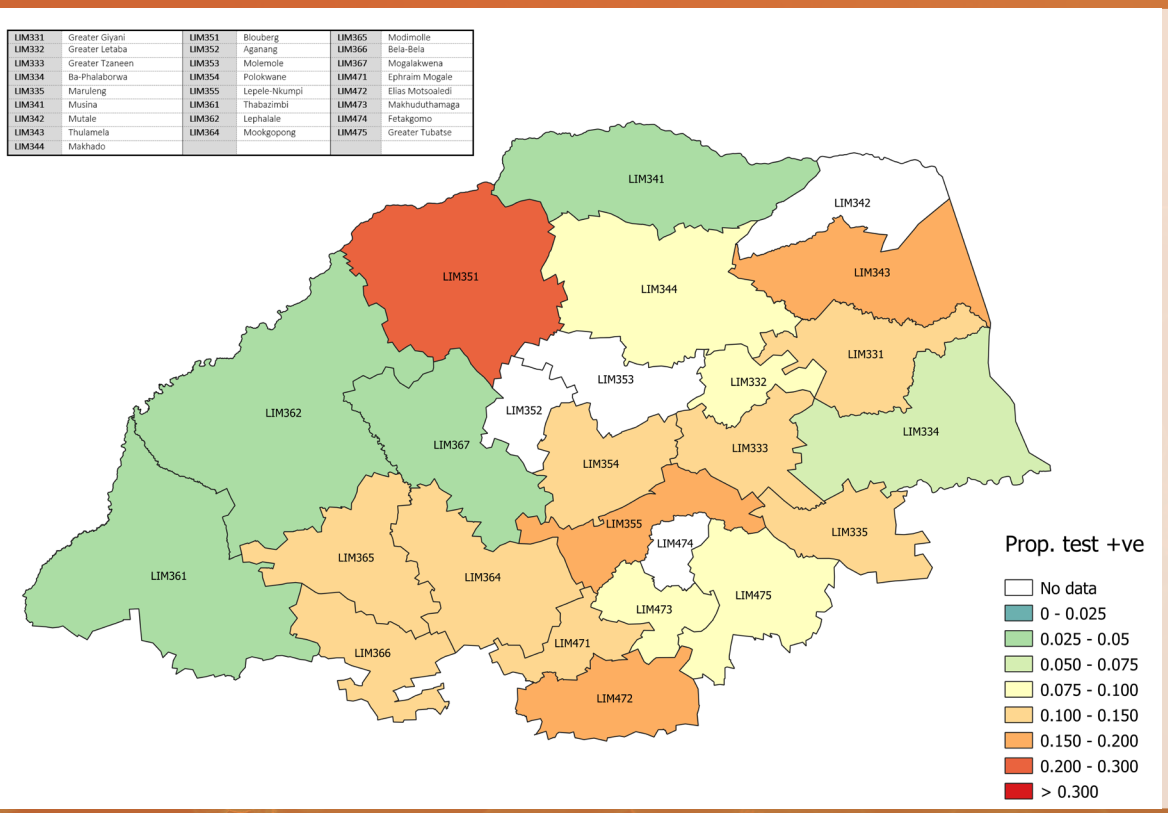

Figure 15. Proportion testing positive by health sub-district in Limpopo Province for the week of 5-11 September 2021. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

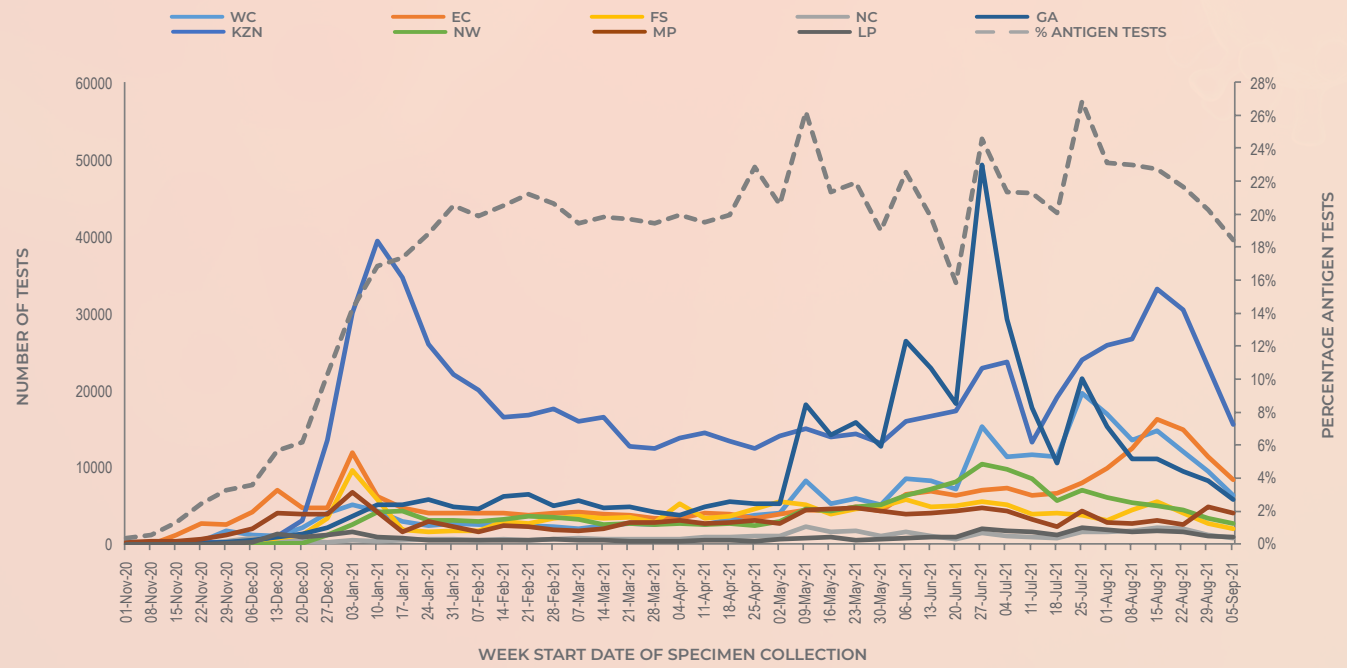

Figure 16. Number of antigen tests by province and overall percentage antigen tests, South Africa, 1 November 2020 – 11 September 2021. WC Western Cape; EC Eastern Cape; FS Free State; KZN KwaZulu-Natal; GA Gauteng; NC Northern Cape; NW North West; MP Mpumalanga; LP Limpop

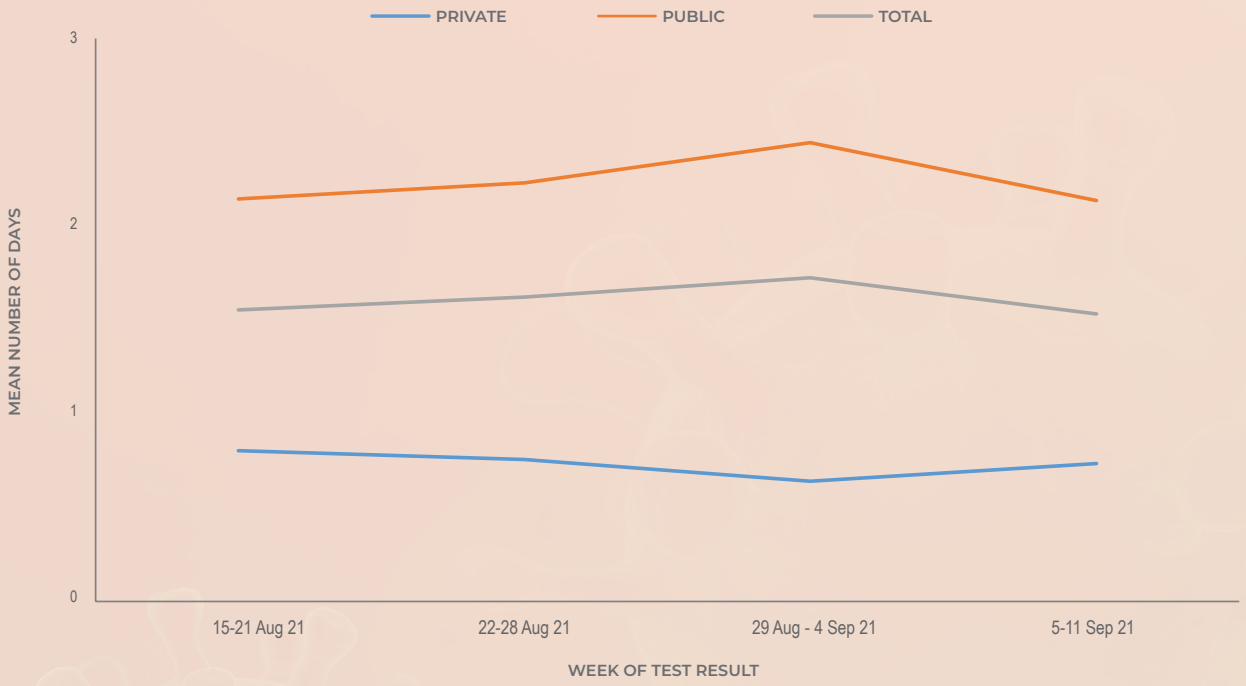

Figure 17. Mean number of days between date of specimen collection and date of test result for PCR tests by week of test result, South Africa, 15 August – 11 September 2021

*Excluding Ampath Laboratories

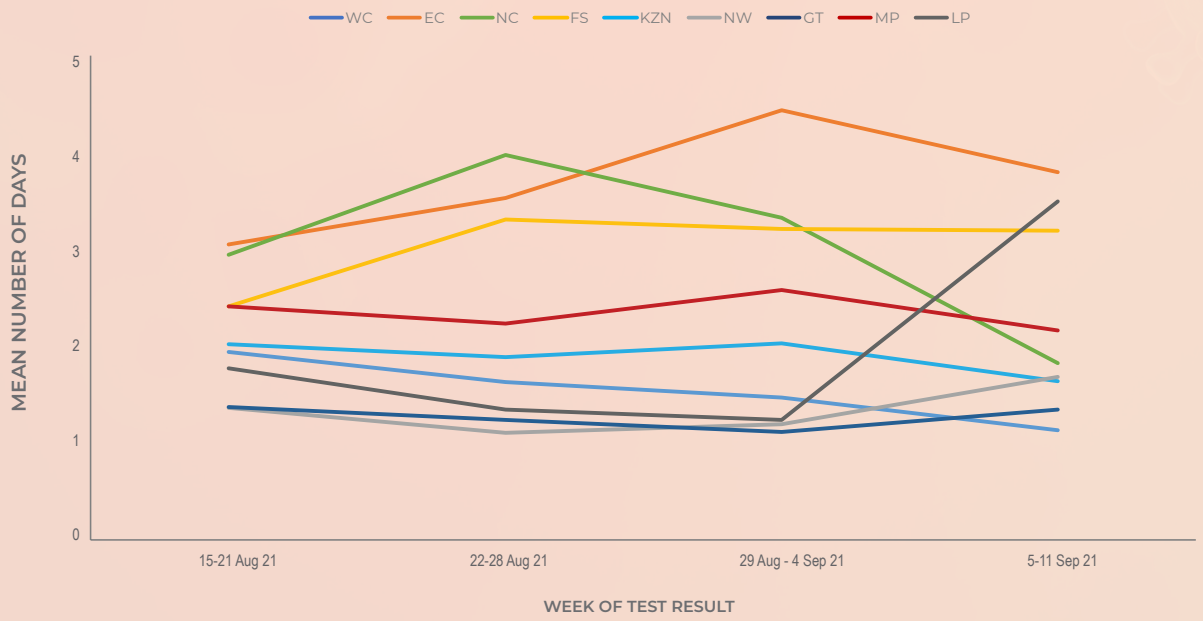

Figure 18. Mean number of days between date of specimen collection and date of test result for PCR tests by week of test result and province in the public sector, South Africa, 15 August - 11 September 2021. WC Western Cape; EC Eastern Cape; FS Free State; KZN KwaZulu-Natal; GT Gauteng; NC Northern Cape; NW North West; MP Mpumalanga; LP Limpopo

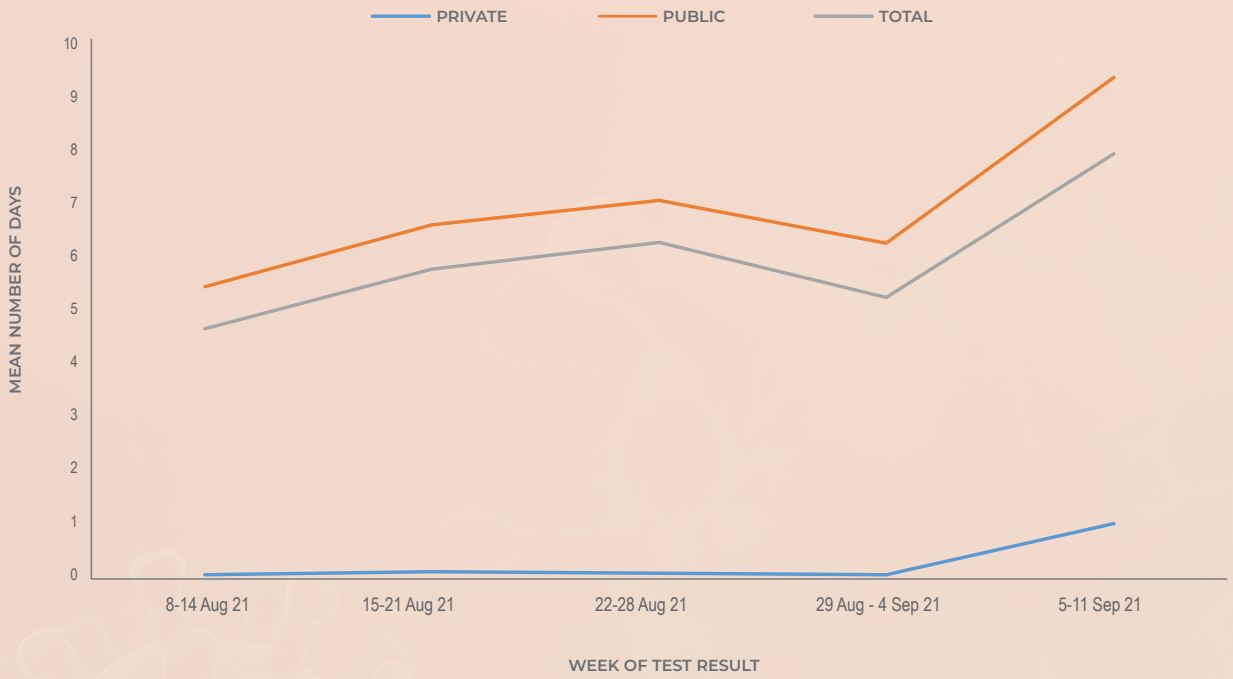

Figure 19. Mean number of days between date of specimen collection and date of test result for antigen tests by week of test result, South Africa, 8 August – 11 September 2021

Methods

Testing for SARS-CoV-2 began on 28 January 2020 at the NICD and after the first case was confirmed on 5th March 2020, testing was expanded to a larger network of private and NHLS laboratories. Laboratory testing was conducted for people meeting the case definition for persons under investigation (PUI). This definition was updated several times over the reporting period but at different times included (i) symptomatic individuals seeking testing, (ii) hospitalised individuals for whom testing was done, (iii) individuals in high-risk occupations, (iv) individuals in outbreak settings, and (v) individuals identified through community screening and testing (CST) programmes which were implemented in April 2020 and was discontinued from the week beginning 17th May. CST was implemented differently in different provinces, and ranged from mass screening approaches (including asymptomatic individuals) to screening of individuals in contact with a confirmed case to targeted testing of clusters of cases. Respiratory specimens were submitted to testing laboratories. Testing was performed using reverse transcriptase real-time PCR, which detects SARS-CoV-2 viral genetic material. Laboratories used any one of several in-house and commercial PCR assays to test for the presence of SARS-CoV-2 RNA. Testing for SARS-CoV-2 using rapid antigen-based tests was implemented towards the end of October 2020. Results of reported rapid antigen-based tests are included in this report, however data are incomplete and efforts are ongoing to improve data completeness.

Test results were automatically fed into a data warehouse after result authorisation. We excluded specimens collected outside South Africa and duplicate entries of the same test for an individual. From week 48 of 2020 onwards, test data were reported from the Notifiable Medical Conditions Surveillance System (NMCSS). Date of specimen receipt in the laboratory was used when date of specimen collection was missing. Proportion testing positive (PTP) was calculated as the number of positive tests/total number of tests and presented as percentage by multiplying with 100. We used 2020 mid-year population estimates from Statistics South Africa to calculate the testing rate, expressed as tests per 100,000 persons. Laboratory turnaround times were calculated as the mean number of days between specimen collection and reporting of the result. Categorical variables were compared using the chi-squared test, with a P-value<0.05 considered statistically significant.

Health district and sub-district (in the metros) level results were mapped based on geo-locatable public (almost every public sector facility in the country) and private (approximately 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.