

## **COVID-19 Weekly Testing Summary: Week ending 01 January 2022 (Week 52 of 2021)**

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 1 January 2022 (Week 52 of 2021).

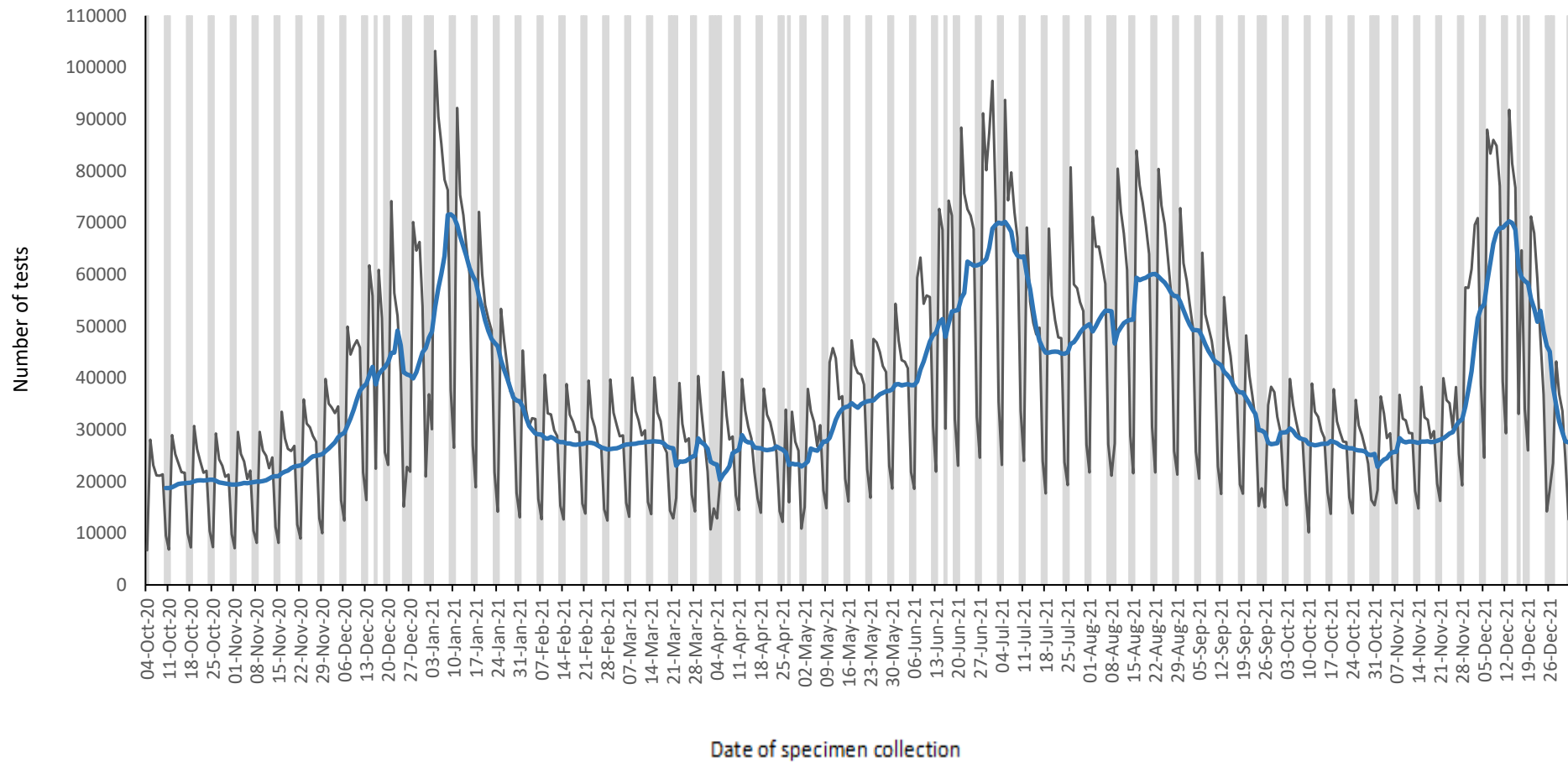
### **Highlights:**

- The number of tests reported in week 52 of 2021 (n=192,786: 138,872 PCR and 53,914 antigen tests) was lower than the number of tests reported in the previous week.
- Similar to the previous week, in week 52 the testing rate was highest in the Western Cape (536 per 100,000 persons) and lowest in Limpopo (87 per 100,000 persons).
- In week 52 the percentage testing positive was 31.1%, which was 4.1% lower than the previous week.
- In week 52, compared to the previous week, the percentage testing positive decreased in all provinces except in the North West, where it remained unchanged.
- The percentage testing positive in week 52 was > 35% in the Western Cape, Eastern Cape, Northern Cape, and KwaZulu-Natal provinces. The percentage testing positive was between 25-35% in Limpopo, Free State, North West and Mpumalanga provinces and was lowest in Gauteng province (19.2%).

### **Executive Summary:**

- In the period 1 March 2020 through 01 January 2022, 21,130,001 tests for SARS-CoV-2 have been reported nationally: 17,856,162 PCR and 3,273,839 antigen tests.
- The number of tests reported in week 52 of 2021 (n=192,786: 138,872 PCR and 53,914 antigen tests) was lower than the number of tests reported in the previous week.
- Gauteng reported the largest percentage of tests (31.2%), followed by KwaZulu-Natal (21.6%) and Western Cape (19.5%).
- The overall testing rate decreased from 542 per 100,000 persons in week 51 to 323 per 100,000 persons in week 52.
- In week 52 the testing rate decreased in all provinces and was highest in the Western Cape (536 per 100,000 persons) and lowest in Limpopo (87 per 100,000 persons).
- The testing rate in week 52 was highest in the ≥80 years age group (818 per 100,000 persons).
- In week 52 the percentage testing positive was 31.1%, which was 4.1% lower than the previous week (P<0.001).
- In the past week, the percentage testing positive decreased by 5.5% in the public sector (38.8% in week 51 to 33.3% in week 52, P<0.001) and decreased by 2.9% in the private sector (32.6% in week 51 to 29.7% in week 52, P<0.001).
- In week 52, compared to the previous week, the percentage testing positive decreased in all provinces except in the North West, where it remained unchanged.

- The percentage testing positive in week 52 was > 35% in the Western Cape, Eastern Cape, Northern Cape, and KwaZulu-Natal provinces. The percentage testing positive was between 25-35% in Limpopo, Free State, North West and Mpumalanga provinces and was lowest in Gauteng province (19.2%).
- The percentage testing positive was highest in the 75-79 years age group (40.2%).
- Health sub-districts showing high proportions testing positive were concentrated in the Western Cape (n=10), Northern Cape (n=5) and KwaZulu-Natal (n=5).
- Antigen tests accounted for 28.0% (53,914/ 192,786) of tests reported in week 52, however the number of antigen tests is likely underestimated due to under-reporting and delayed reporting of antigen tests.
- In week 52 the public sector accounted for 62.5% (33,718/ 53,914) of antigen tests reported. A decrease in the number of antigen tests reported was observed across all provinces in the past week.
- The mean turnaround time for PCR tests reported in week 52 was 0.8 days; 1.0 days in the public sector and 0.6 days in the private sector. Turnaround times for public sector PCR tests decreased in all provinces except in the Western Cape and Mpumalanga in the past week, and were <2 days in all provinces.
- The mean turnaround time for antigen tests reported in week 52 was 8.6 days in the public sector and 0.1 days in the private sector.



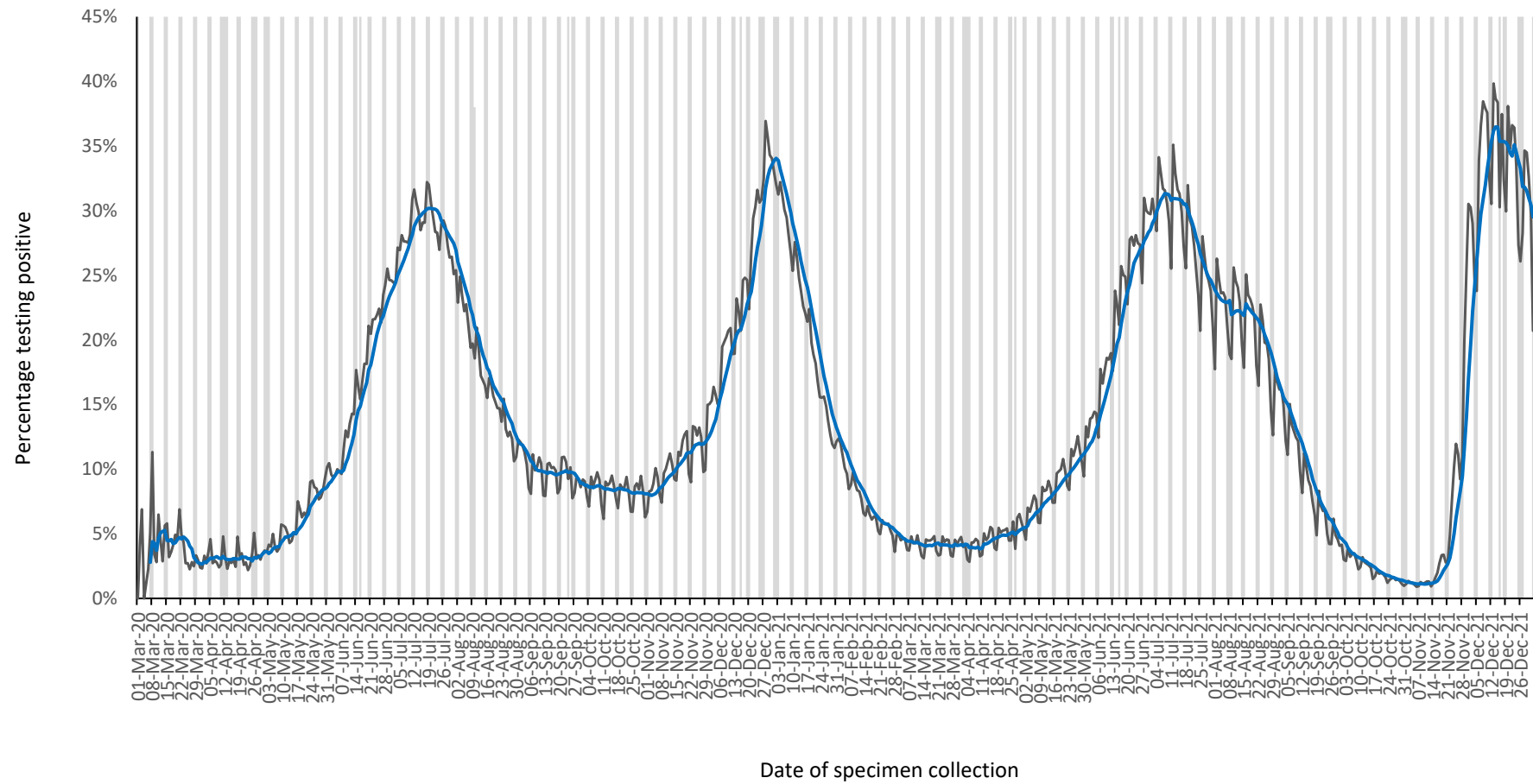
**Figure 1.** Number of SARS-CoV-2 tests reported by date of specimen collection, South Africa, 4 October 2020 – 1 January 2022. Blue line shows the 7-day moving average of the number of tests reported. Grey bars highlight weekend days and public holidays



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

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)
1	03-Jan-21	501311 (2.4)	151054	30.1
2	10-Jan-21	418060 (2.0)	104819	25.1
3	17-Jan-21	327494 (1.5)	63273	19.3
4	24-Jan-21	249602 (1.2)	34648	13.9
5	31-Jan-21	203771 (1.0)	22375	11.0
6	07-Feb-21	193322 (0.9)	16476	8.5
7	14-Feb-21	190680 (0.9)	12191	6.4
8	21-Feb-21	184711 (0.9)	10387	5.6
9	28-Feb-21	189715 (0.9)	8693	4.6
10	07-Mar-21	193444 (0.9)	8340	4.3
11	14-Mar-21	185523 (0.9)	8156	4.4
12	21-Mar-21	173269 (0.8)	7355	4.2
13	28-Mar-21	163967 (0.8)	7062	4.3
14	04-Apr-21	180872 (0.9)	7292	4.0
15	11-Apr-21	185346 (0.9)	8847	4.8
16	18-Apr-21	184899 (0.9)	9470	5.1
17	25-Apr-21	160007 (0.8)	9181	5.7
18	02-May-21	193951 (0.9)	13459	6.9
19	09-May-21	240284 (1.1)	19936	8.3
20	16-May-21	248480 (1.2)	24212	9.7
21	23-May-21	262608 (1.2)	29777	11.3
22	30-May-21	270288 (1.3)	36103	13.4
23	06-Jun-21	337840 (1.6)	59448	17.6
24	13-Jun-21	370960 (1.8)	88078	23.7
25	20-Jun-21	432351 (2.0)	118609	27.4
26	27-Jun-21	489883 (2.3)	146603	29.9
27	04-Jul-21	443694 (2.1)	141416	31.9
28	11-Jul-21	320507 (1.5)	100900	31.5
29	18-Jul-21	312861 (1.5)	88373	28.2
30	25-Jul-21	350152 (1.7)	88237	25.2
31	01-Aug-21	370884 (1.8)	88004	23.7
32	08-Aug-21	358523 (1.7)	83282	23.2
33	15-Aug-21	420416 (2.0)	95242	22.7
34	22-Aug-21	390911 (1.9)	78067	20.0
35	29-Aug-21	344659 (1.6)	55003	16.0
36	05-Sep-21	299920 (1.4)	38771	12.9
37	12-Sep-21	260312 (1.2)	23986	9.2

<b>38</b>	19-Sep-21	208633 (1.0)	13984	6.7
<b>39</b>	26-Sep-21	206066 (1.0)	9467	4.6
<b>40</b>	03-Oct-21	196036 (0.9)	6435	3.3
<b>41</b>	10-Oct-21	191055 (0.9)	5010	2.6
<b>42</b>	17-Oct-21	184726 (0.9)	3403	1.8
<b>43</b>	24-Oct-21	175675 (0.8)	2556	1.5
<b>44</b>	31-Oct-21	179580 (0.8)	2089	1.2
<b>45</b>	07-Nov-21	193321 (0.9)	2304	1.2
<b>46</b>	14-Nov-21	194980 (0.9)	4794	2.5
<b>47</b>	21-Nov-21	220867 (1.0)	18880	8.5
<b>48</b>	28-Nov-21	374425 (1.8)	97667	26.1
<b>49</b>	05-Dec-21	483185 (2.3)	173122	35.8
<b>50</b>	12-Dec-21	411107 (1.9)	151692	36.9
<b>51</b>	19-Dec-21	323080 (1.5)	113813	35.2
<b>52</b>	26-Dec-21	192786 (0.9)	60017	31.1
<b>Total</b>		<b>21,130,001(100.0)</b>	<b>3,757,291</b>	

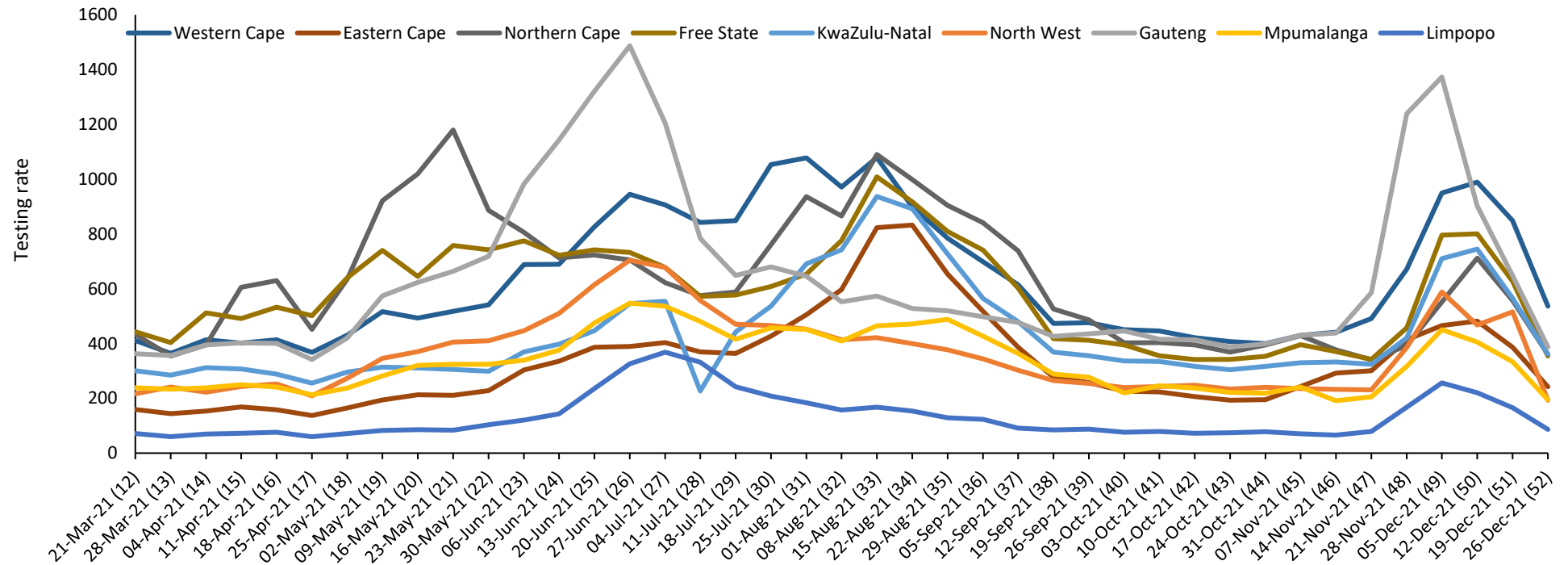


**Figure 2.** Percentage of tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March 2020 – 1 January 2022. Blue line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.



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**Figure 3.** Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 21 March 2021 – 1 January 2022

**Table 2.** Weekly number of tests and positive tests reported by province, South Africa, 12 December 2021 – 1 January 2022

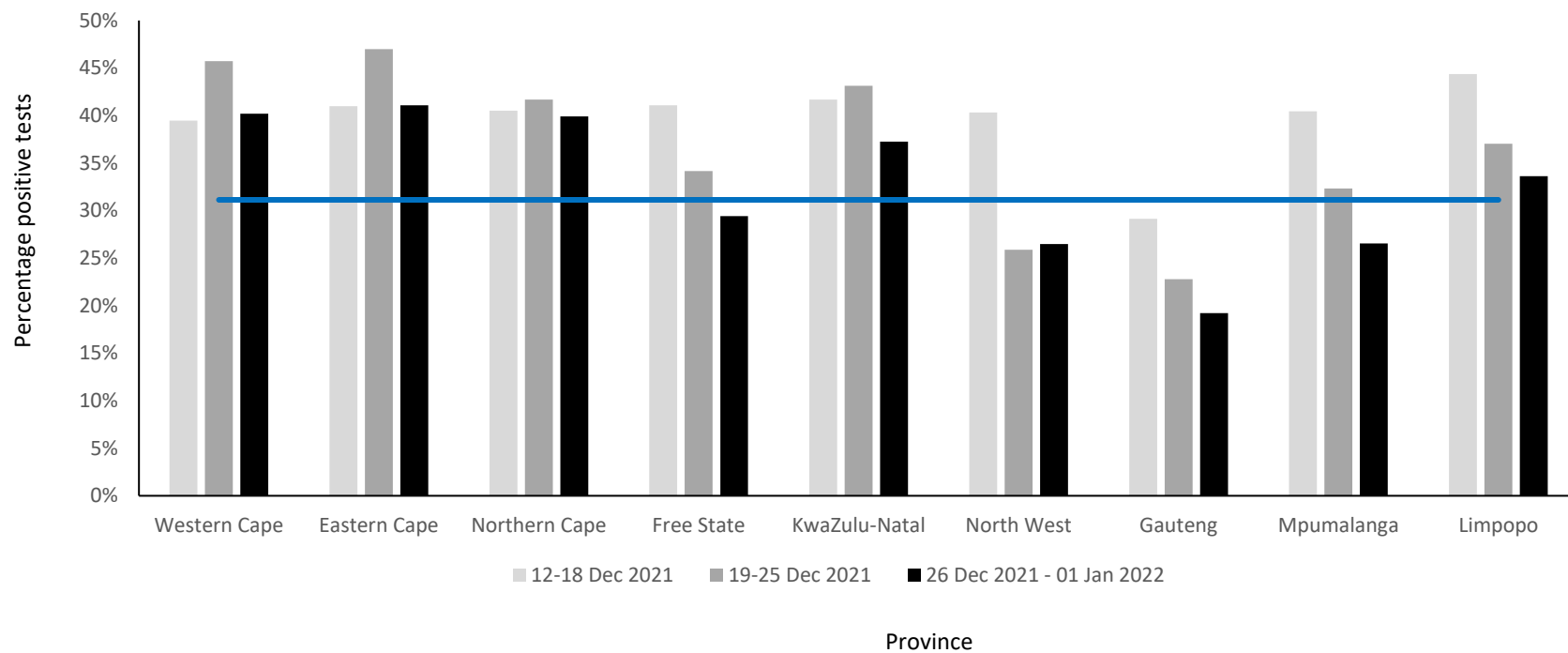
Province	Population <sup>a</sup>	12-18 Dec 2021		19-25 Dec 2021		26 Dec 2021 - 01 Jan 2022			Change in percentage positive from previous week <sup>b</sup>
		No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	Testing rate per 100,000	
Western Cape	7005741	69311	27365 (39.5)	59432	27174 (45.7)	37583	15107 (40.2)	536	-5.5%
Eastern Cape	6734001	32423	13290 (41.0)	26007	12219 (47.0)	16328	6709 (41.1)	242	-5.9%
Northern Cape	1292786	9203	3729 (40.5)	7205	3003 (41.7)	4650	1855 (39.9)	360	-1.8%
Free State	2928903	23460	9636 (41.1)	18376	6279 (34.2)	10380	3055 (29.4)	354	-4.7%
KwaZulu-Natal	11531628	85904	35808 (41.7)	65185	28123 (43.1)	41609	15506 (37.3)	361	-5.9%
North West <sup>c</sup>	4108816	19213	7748 (40.3)	21208	5491 (25.9)	7924	2098 (26.5)	193	0.6%
Gauteng	15488137	139710	40717 (29.1)	100323	22873 (22.8)	60059	11548 (19.2)	388	-3.6%
Mpumalanga	4679786	18974	7674 (40.4)	15604	5045 (32.3)	9133	2425 (26.6)	195	-5.8%
Limpopo	5852553	12890	5720 (44.4)	9725	3602 (37.0)	5092	1712 (33.6)	87	-3.4%
Unknown		19	5 (26.3)	15	4 (26.7)	28	2 (7.1)		
<b>Total</b>	<b>59622350</b>	<b>411107</b>	<b>151692 (36.9)</b>	<b>323080</b>	<b>113813 (35.2)</b>	<b>192786</b>	<b>60017 (31.1)</b>	<b>323</b>	<b>-4.1%</b>

<sup>a</sup> 2020 Mid-year population Statistics SA

<sup>b</sup> Current week compared to previous week

<sup>c</sup> Due to negative tests that were erroneously reported in duplicate in some labs in the North West province, a large decrease in the percentage testing positive was observed in week 51 (19-25 Dec 2021). Duplicate tests are currently being removed from the database and this will be corrected in future reports.





**Figure 4.** Weekly percentage testing positive by province, South Africa, 12 December 2021 – 1 January 2022. The horizontal blue line shows the national mean for week 52, beginning 26 December 2021



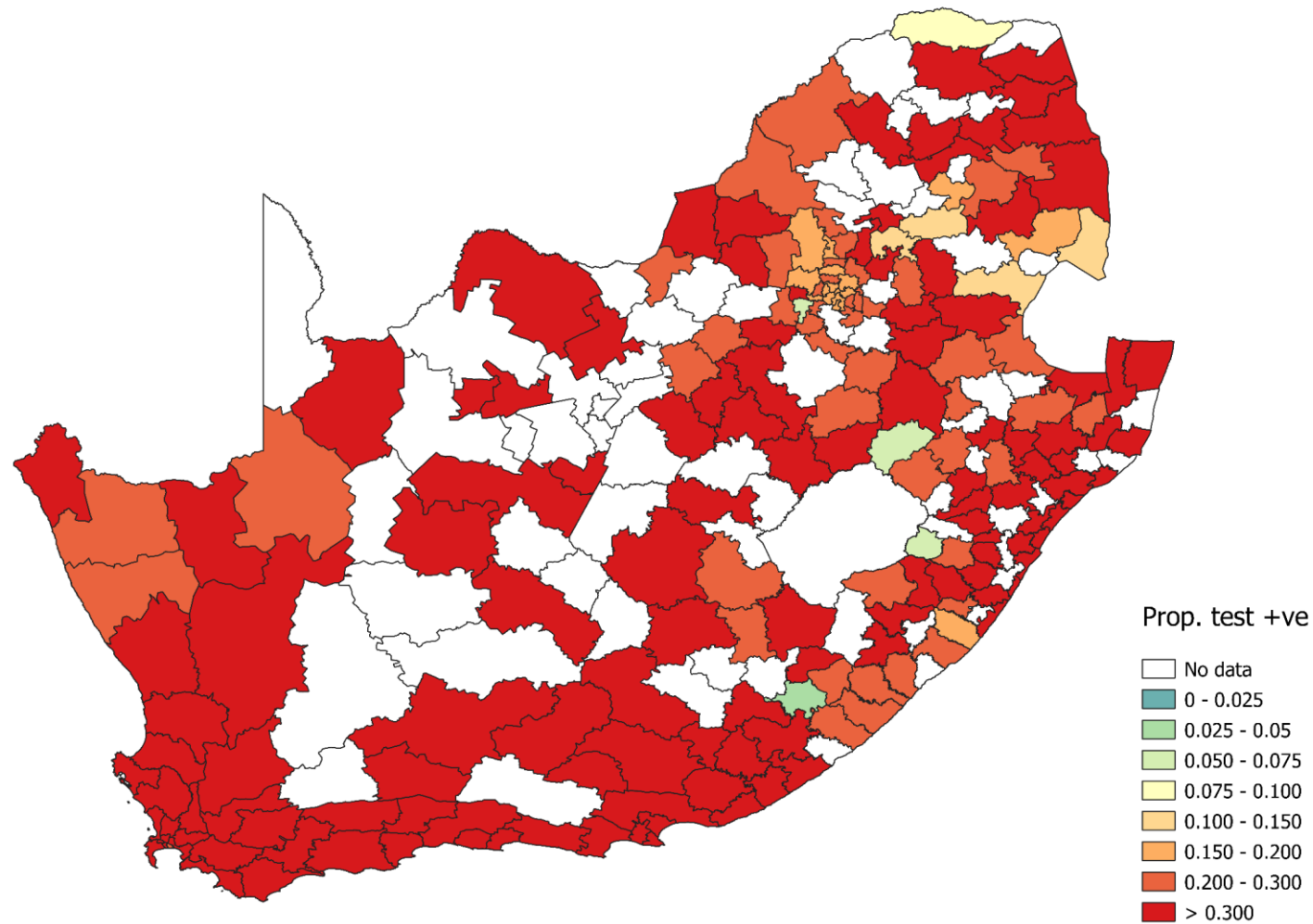
**Figure 5.** Testing rates per 100,000 persons and percentage testing positive by age group and sex, South Africa, week 52, 26 December 2021 – 1 January 2022



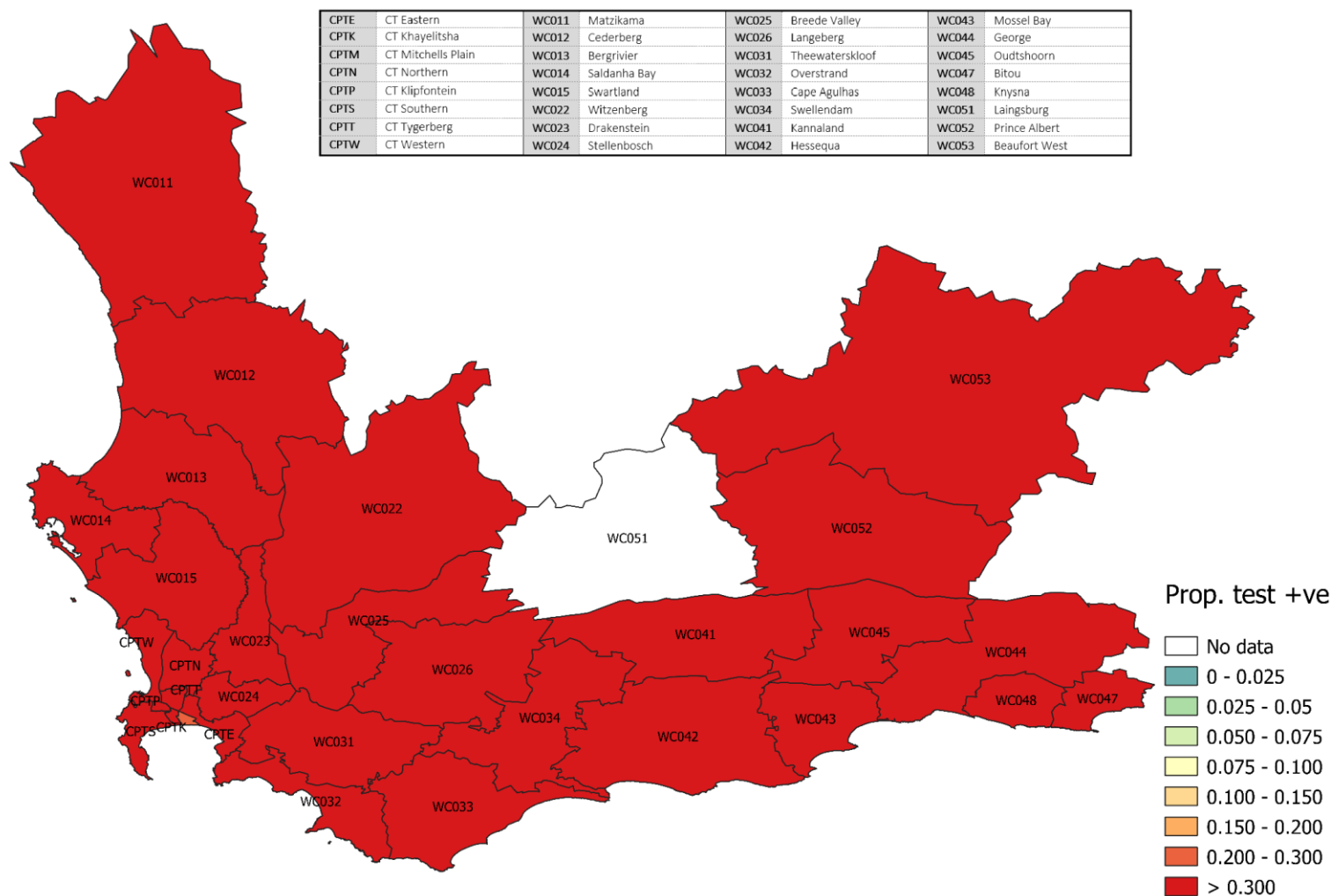
**Table 3.** Health sub-districts with the highest proportion testing positive based on public and private sector data for the week of 26 December 2021 – 1 January 2022

Health district or sub-district	Province	PTP (95% CI)	Previous week
Prince Albert	Western Cape	0.874 (0.770-0.977)	0.452 (0.347-0.558)
Mthonjaneni	KwaZulu-Natal	0.788 (0.671-0.905)	0.737 (0.660-0.813)
Richtersveld	Northern Cape	0.769 (0.628-0.910)	...
Ikwezi	Eastern Cape	0.755 (0.608-0.903)	...
Nxuba	Eastern Cape	0.751 (0.623-0.878)	0.527 (0.381-0.673)
Mpofana	KwaZulu-Natal	0.746 (0.629-0.863)	0.491 (0.385-0.597)
Cederberg	Western Cape	0.746 (0.638-0.853)	0.517 (0.402-0.631)
Umhlabuyalingana	KwaZulu-Natal	0.736 (0.684-0.789)	0.599 (0.563-0.635)
Emthanjeni	Northern Cape	0.732 (0.629-0.836)	0.594 (0.514-0.675)
Siyathemba	Northern Cape	0.725 (0.607-0.844)	0.598 (0.490-0.706)
Cape Agulhas	Western Cape	0.723 (0.656-0.790)	0.637 (0.581-0.694)
Witzenberg	Western Cape	0.718 (0.668-0.768)	0.751 (0.712-0.791)
Mtubatuba	KwaZulu-Natal	0.684 (0.556-0.812)	0.638 (0.538-0.738)
Bergvriër	Western Cape	0.679 (0.546-0.813)	0.378 (0.277-0.478)
Theewaterskloof	Western Cape	0.660 (0.607-0.713)	0.581 (0.533-0.630)
Siyancuma	Northern Cape	0.653 (0.507-0.800)	0.606 (0.532-0.681)
Hessequa	Western Cape	0.652 (0.599-0.705)	0.698 (0.650-0.747)
Randfontein	Gauteng	0.637 (0.608-0.667)	0.679 (0.658-0.701)
Beaufort West	Western Cape	0.615 (0.528-0.702)	0.532 (0.454-0.611)
Kannaland	Western Cape	0.598 (0.485-0.711)	0.519 (0.411-0.628)
Nqutu	KwaZulu-Natal	0.594 (0.537-0.651)	0.502 (0.447-0.557)
Greater Giyani	Limpopo	0.590 (0.483-0.696)	0.723 (0.651-0.795)
Hantam	Northern Cape	0.572 (0.459-0.684)	0.339 (0.230-0.447)
Kou-Kamma	Eastern Cape	0.569 (0.490-0.647)	0.520 (0.459-0.581)
Swartland	Western Cape	0.566 (0.506-0.627)	0.587 (0.536-0.637)

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

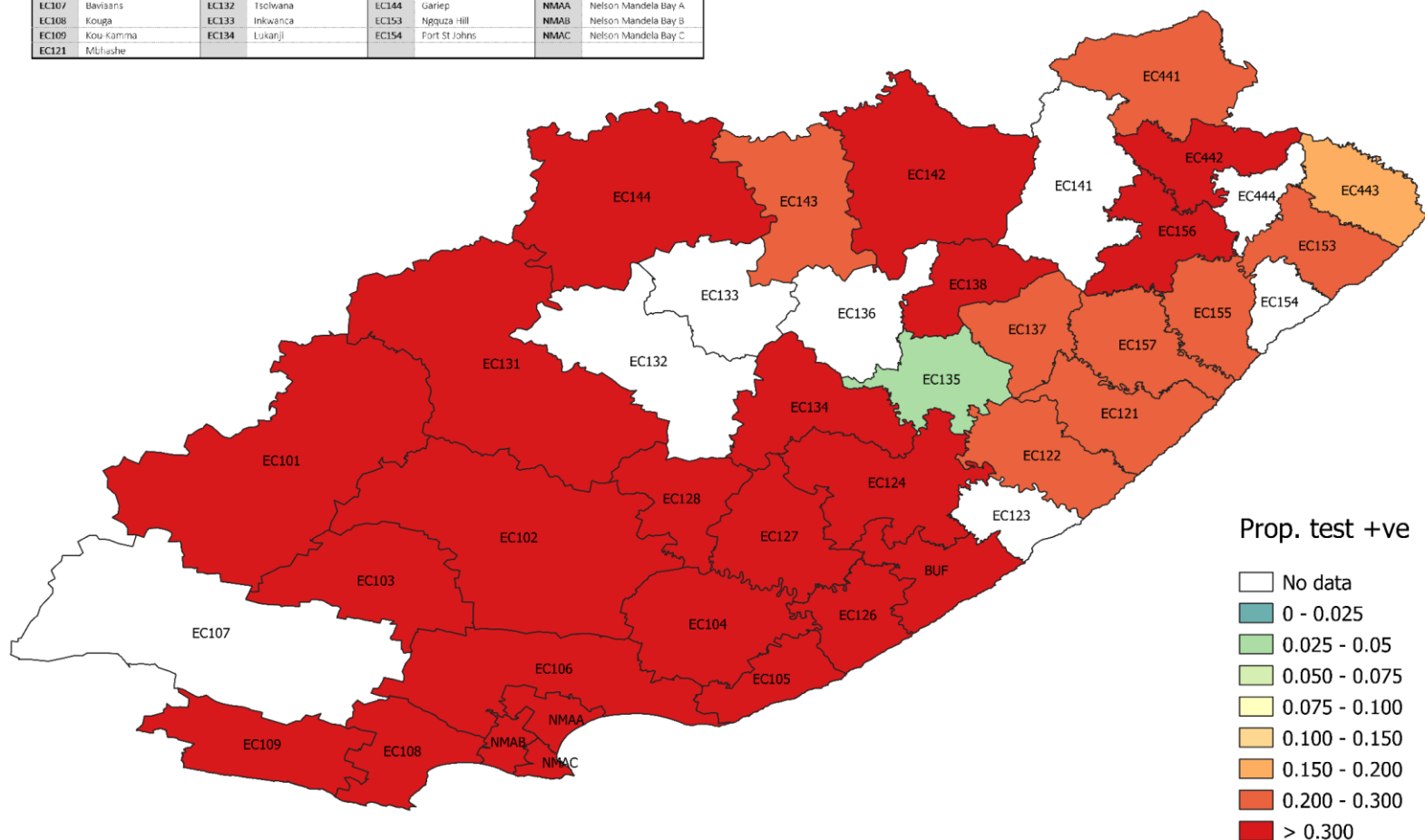


**Figure 6.** Proportion testing positive by health sub-district in South Africa for the week of 26 December 2021 – 1 January 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

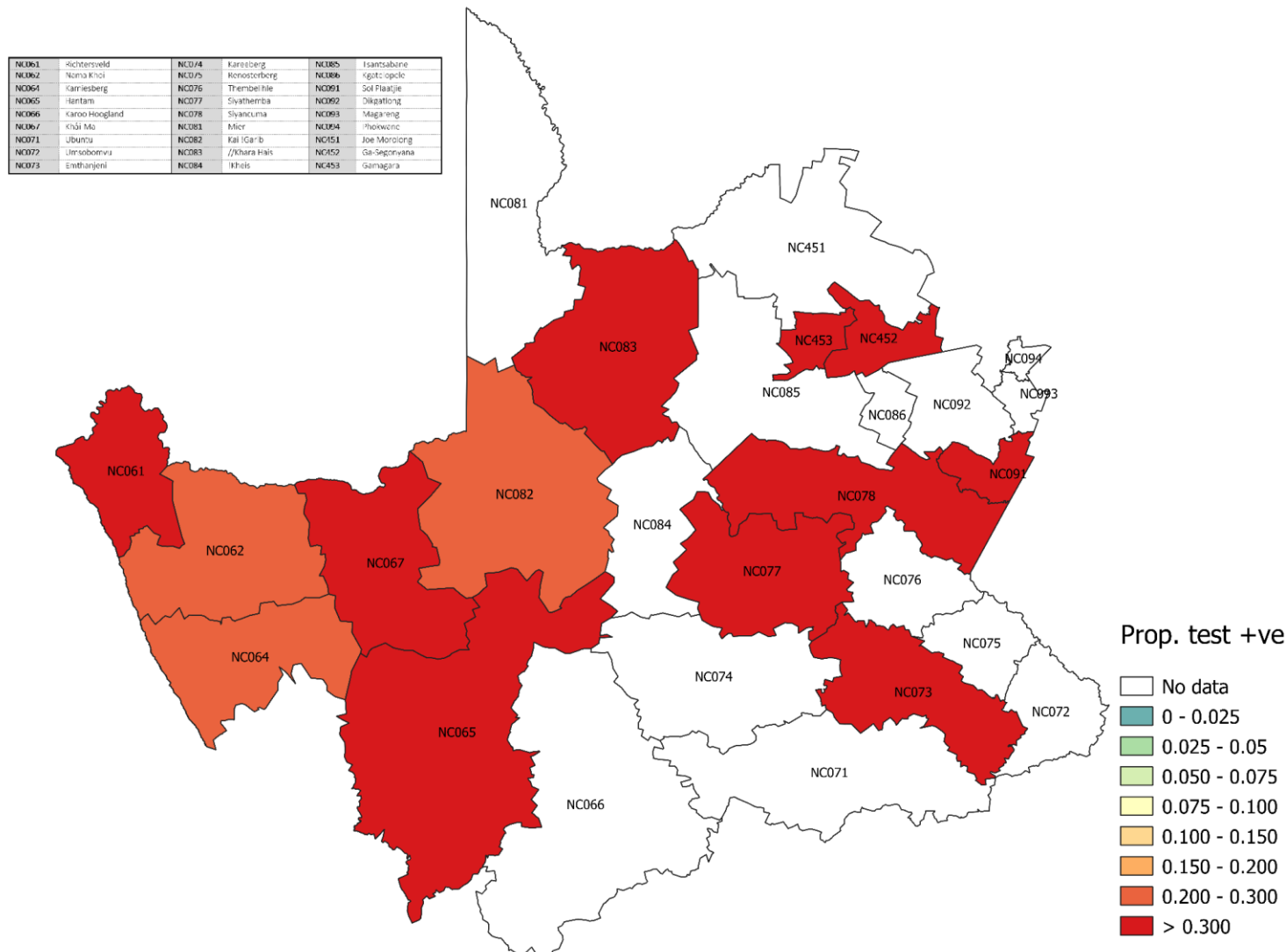


**Figure 7.** Proportion testing positive by health sub-district in the Western Cape Province for the week of 26 December 2021 – 1 January 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%

BUF	Buffalo City	EC122	Mnquma	EC135	Intsika Yethu	EC155	Nyandeni
EC101	Camdeboo	EC123	Gxesi Kel	EC136	Emalahleni	EC156	Mhlontlo
EC102	Blue Crane Route	EC124	Amahlathi	EC137	Engcobo	EC157	King Sabata Dalindyebo
EC103	Ikwezi	EC126	Nqushwa	EC138	Sakhisizwe	EC441	Matatiele
EC104	Makana	EC127	Nkonkobe	EC141	Clundini	EC442	Umtimvubu
EC105	Ndlambe	EC128	Nxuba	EC142	Senqa	EC443	Mbizana
EC106	Sundays River Valley	EC131	Inxuba Yethemba	EC143	Maletswai	EC444	Ntabankulu
EC107	Baviaans	EC132	Isolwana	EC144	Gariep	NMAA	Nelson Mandela Bay A
EC108	Kouga	EC133	Inkwanca	EC153	Nguza Hill	NMAB	Nelson Mandela Bay B
EC109	Kou-Kamma	EC134	Lukarji	EC154	Port St Johns	NMAC	Nelson Mandela Bay C
EC121	Mthashe						

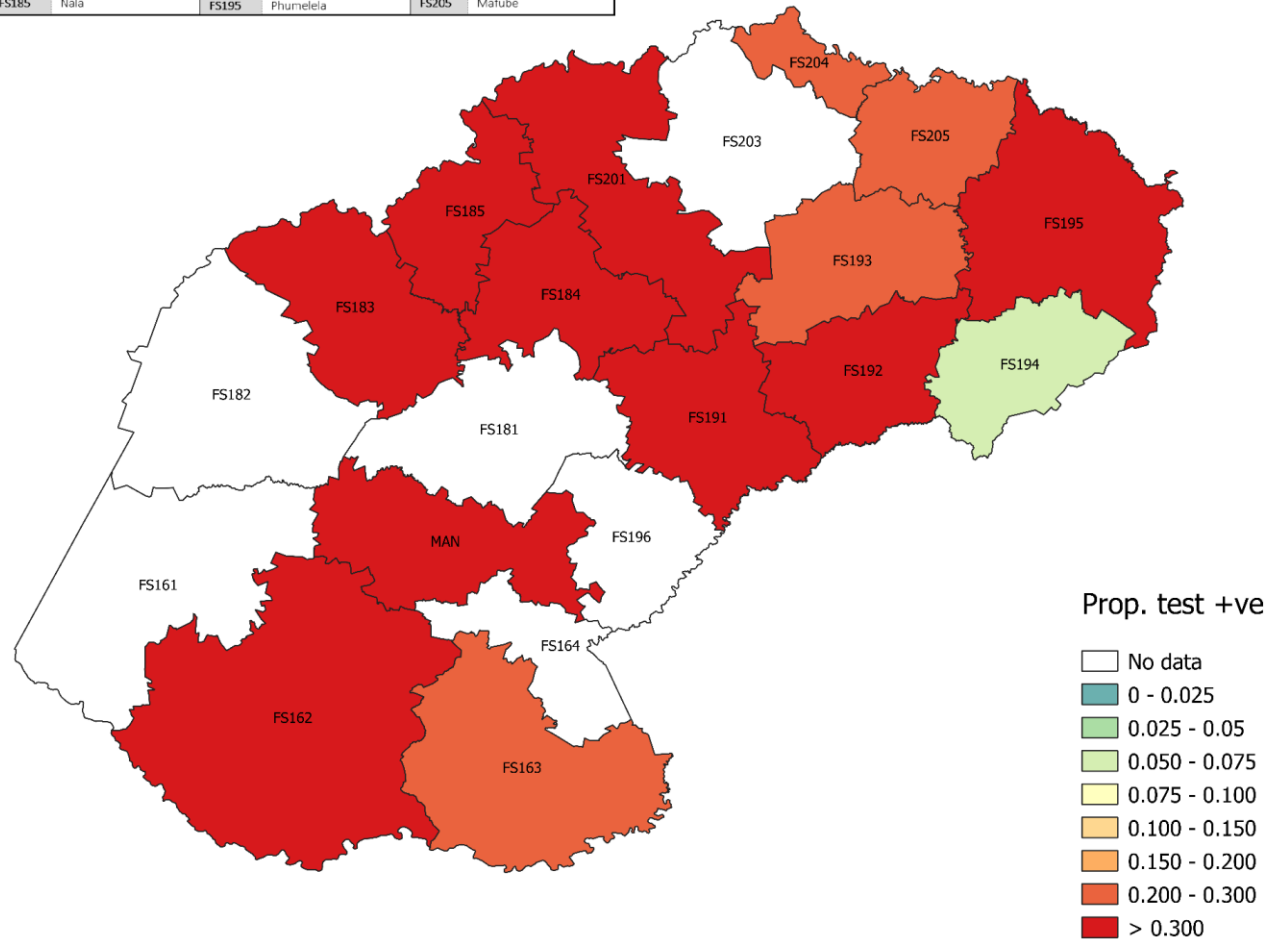


**Figure 8.** Proportion testing positive by health sub-district in the Eastern Cape Province for the week of 26 December 2021 – 1 January 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.



**Figure 9.** Proportion testing positive by health sub-district in Northern Cape Province for the week of 26 December 2021 – 1 January 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%.

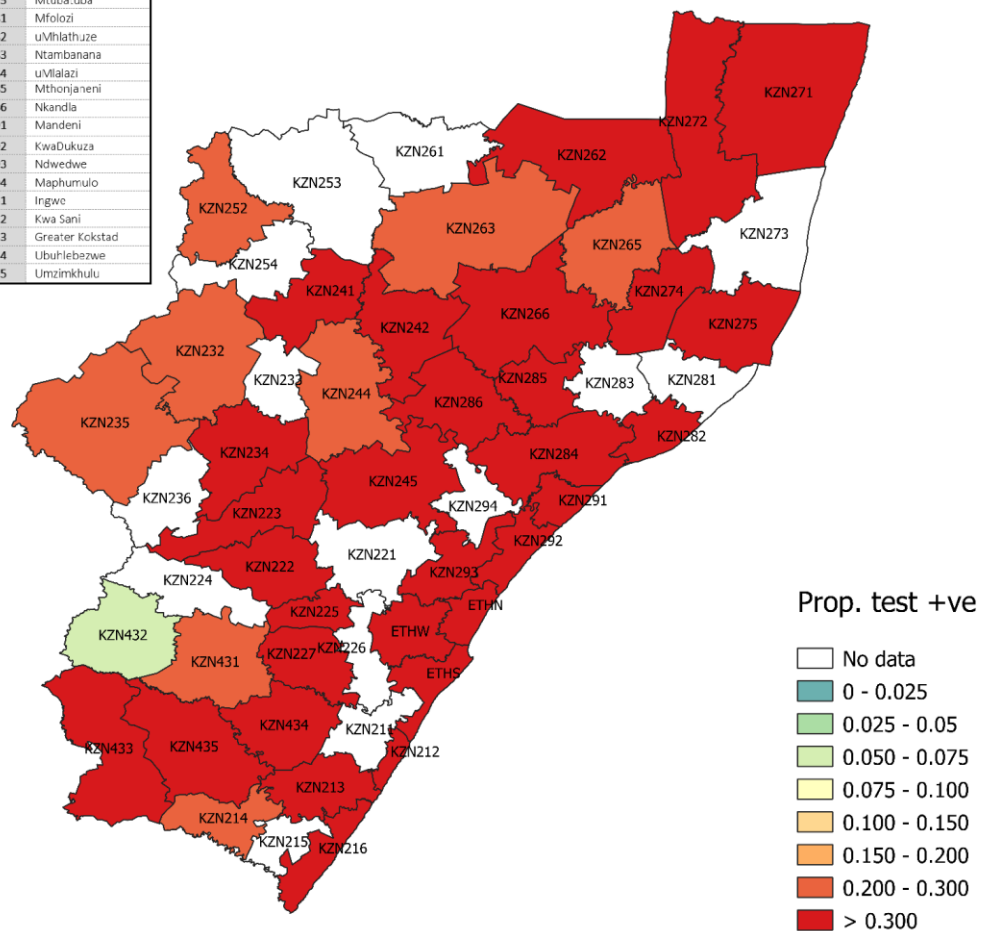
MAN	Mangaung	FS181	Masilonyana	FS191	Setso	FS196	Mantsopa
FS161	Letsemeng	FS182	Tokololo	FS192	Dihlabeng	FS201	Moghaka
FS162	Kopanong	FS183	Tswelopele	FS193	Nketoana	FS203	Ngwathe
FS163	Mohokare	FS184	Matjhabeng	FS194	Maluti a Phofung	FS204	Metsimaholo
FS164	Naledi	FS185	Nala	FS195	Phumelela	FS205	Mafube



**Figure 10.** Proportion testing positive by health sub-district in Free State Province for the week of 26 December 2021 – 1 January 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%.

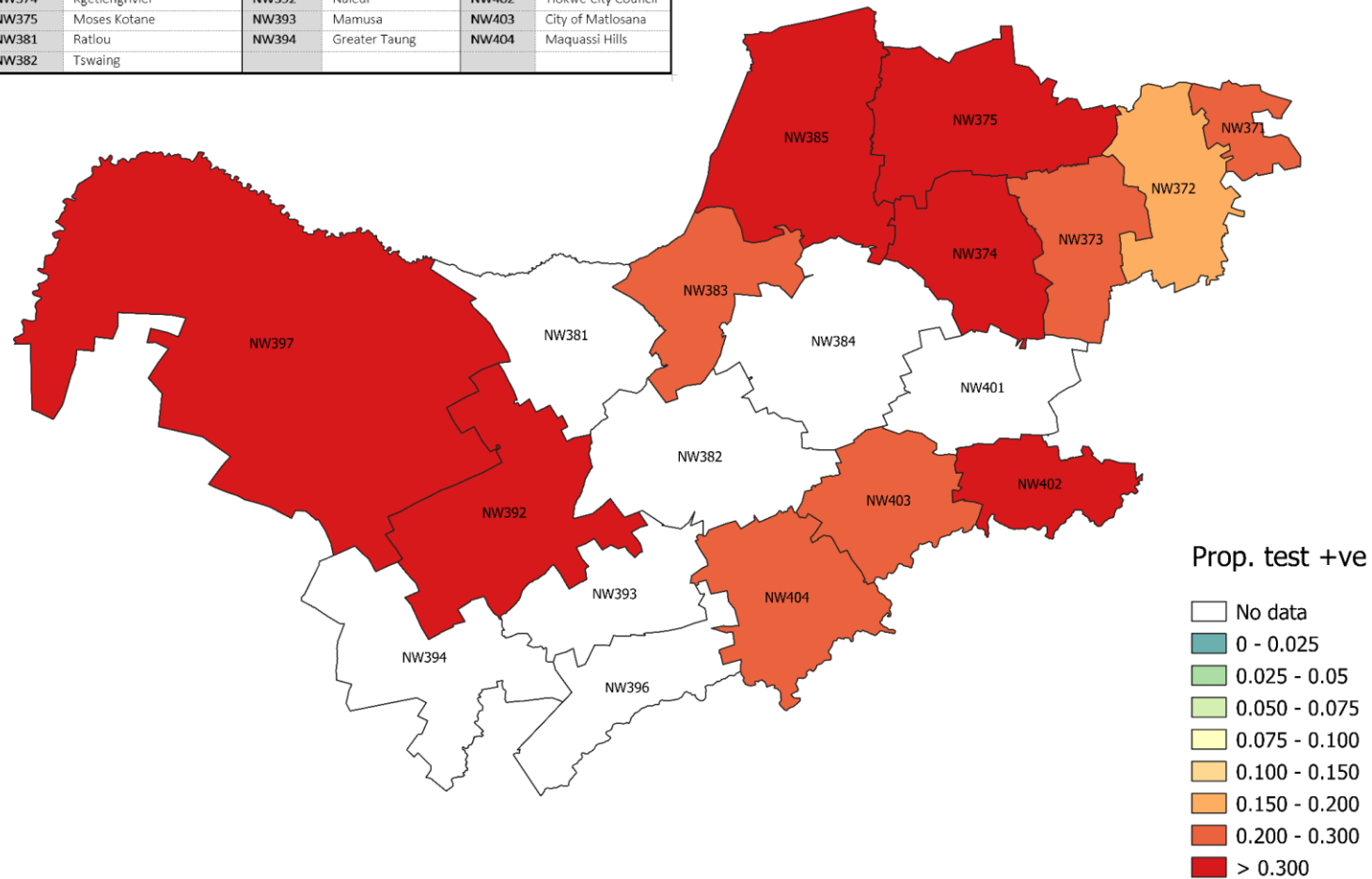


ETHN	eThekweni North	KZN233	Indaka	KZN273	The Big 5 False Bay
ETHS	eThekweni South	KZN234	Umtshezi	KZN274	Hlabisa
ETHS	eThekweni South	KZN235	Okhahlamba	KZN275	Mtubatuba
ETHW	eThekweni West	KZN236	Imbabazane	KZN281	Mfolozi
KZN211	Vulamehlo	KZN241	Endumeni	KZN282	uVhlatshuze
KZN212	Umdoni	KZN242	Nqutu	KZN283	Ntambanana
KZN213	Umkumbe	KZN244	Msinga	KZN284	uVlilazi
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	Umlabuyalingana	KZN434	Ubuhlebezwe
KZN232	Emnambithi/Ladysmith	KZN272	Jozini	KZN435	Umkhulu



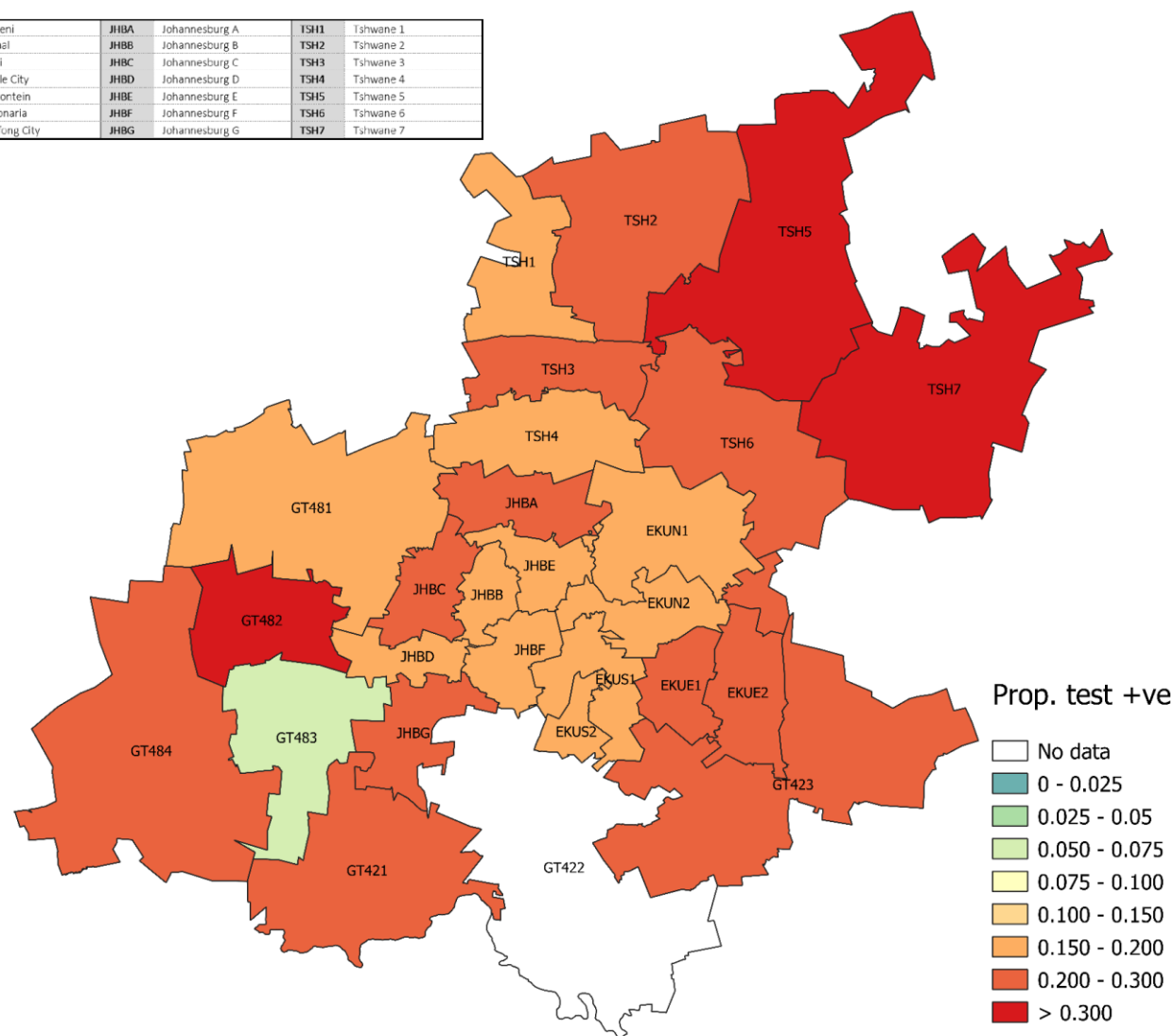
**Figure 11.** Proportion testing positive by health sub-district in KwaZulu-Natal Province for the week of 26 December 2021 – 1 January 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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				



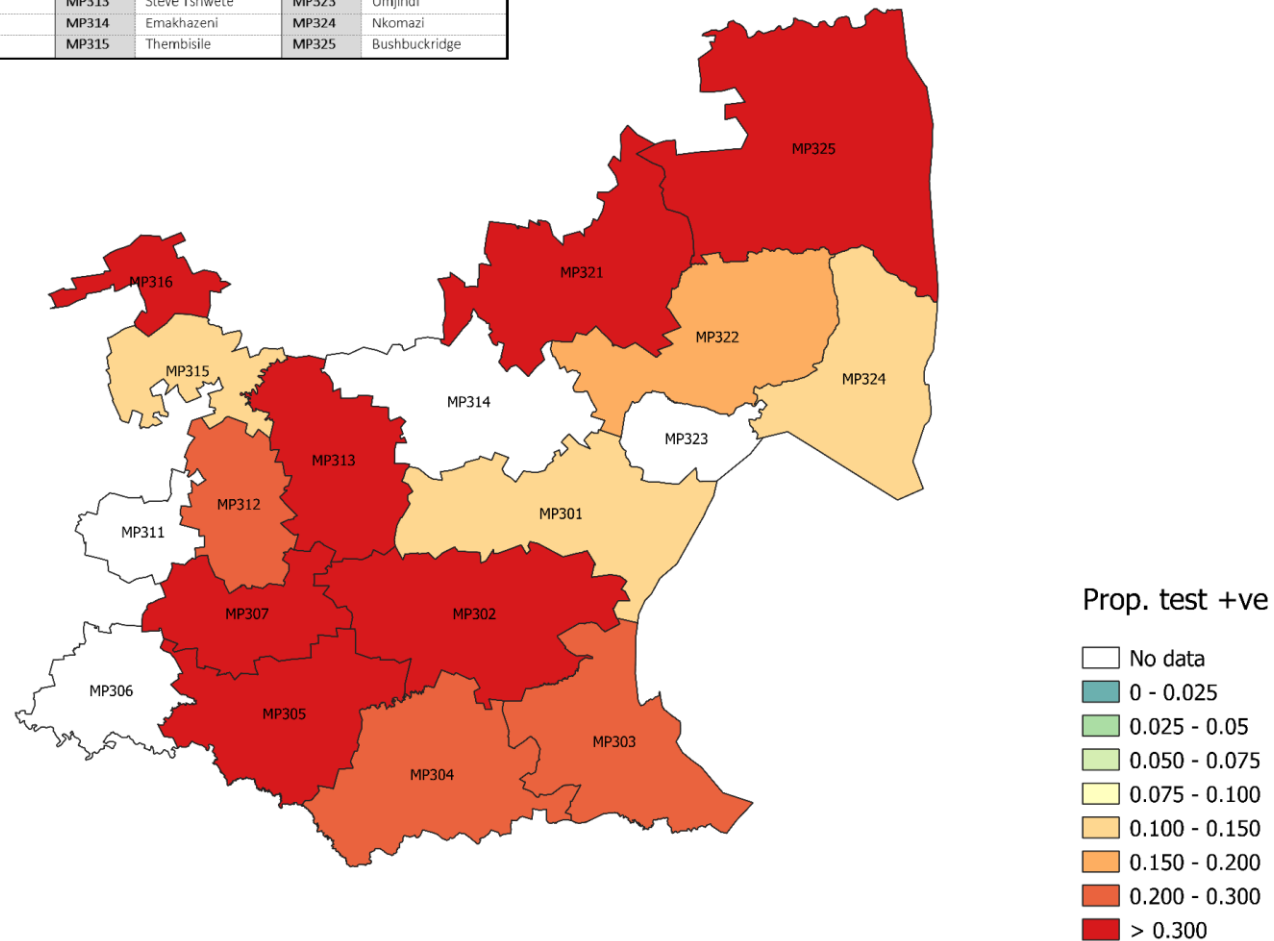
**Figure 12.** Proportion testing positive by health sub-district in North West Province for the week of 26 December 2021 – 1 January 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

EKUE1	Ekurhuleni East 1	GT421	Imfuleni	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



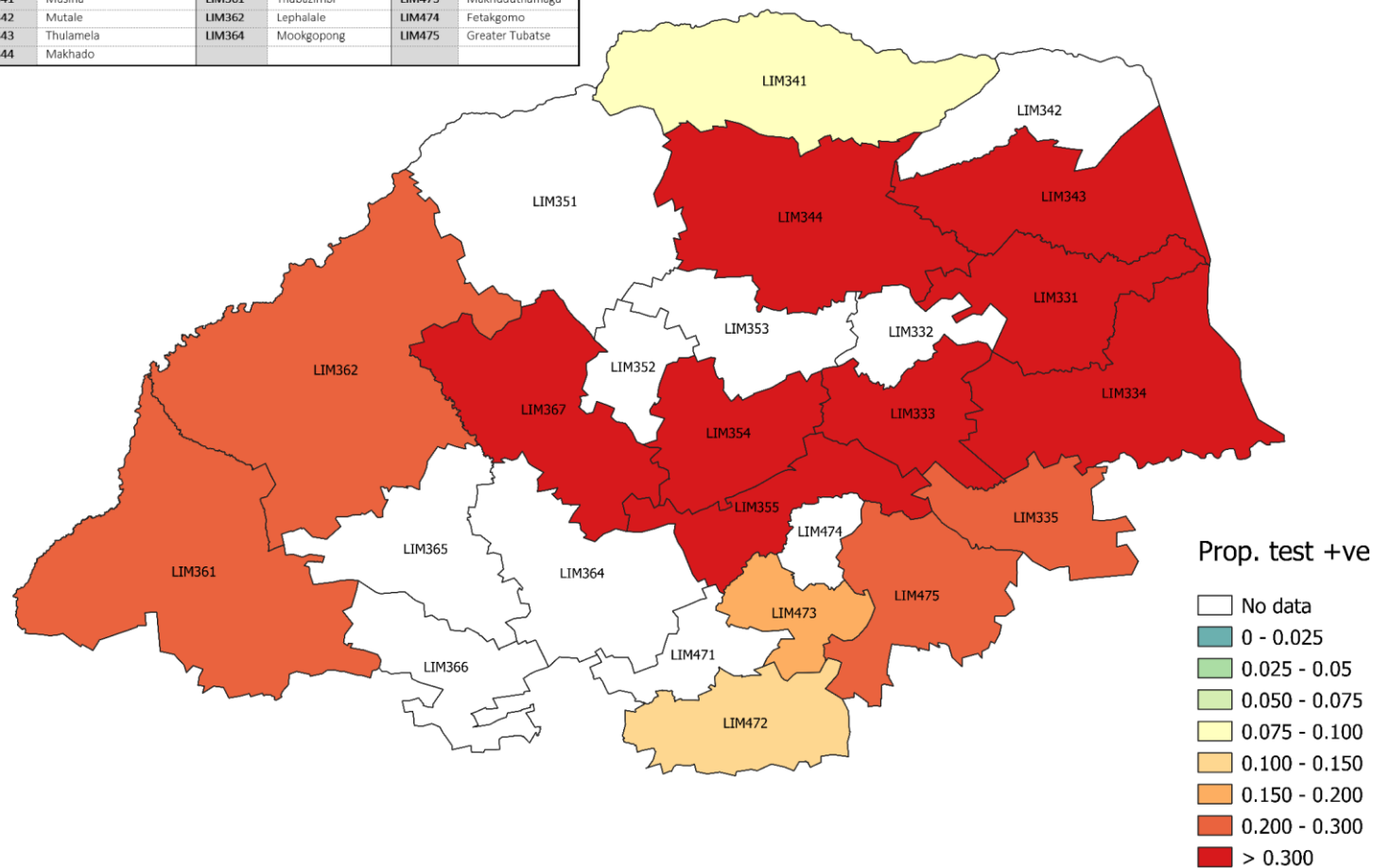
**Figure 13.** Proportion testing positive by health sub-district in Gauteng Province for the week of 26 December 2021 – 1 January 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

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

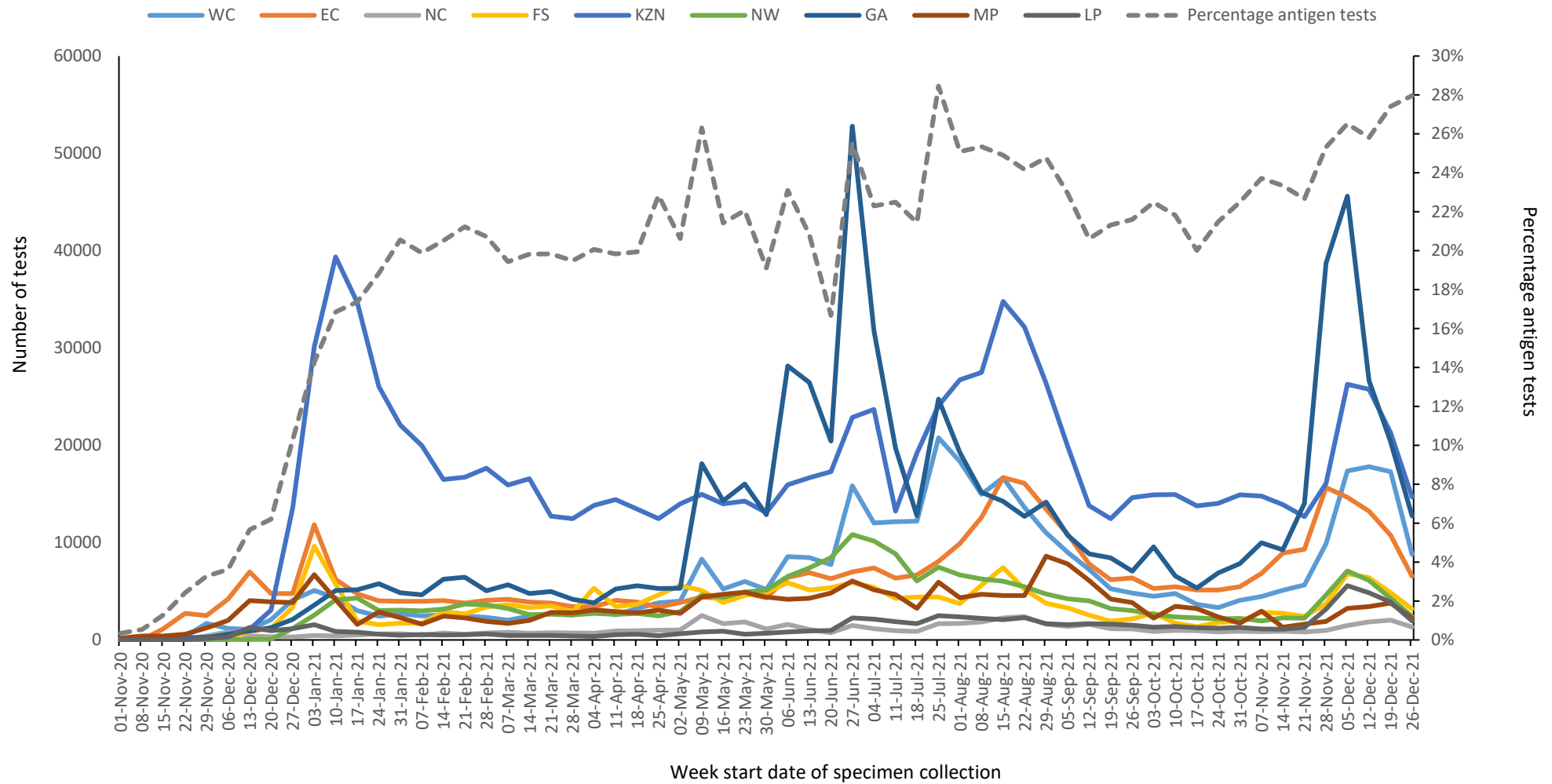


**Figure 14.** Proportion testing positive by health sub-district in Mpumalanga Province for the week of 26 December 2021 – 1 January 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.

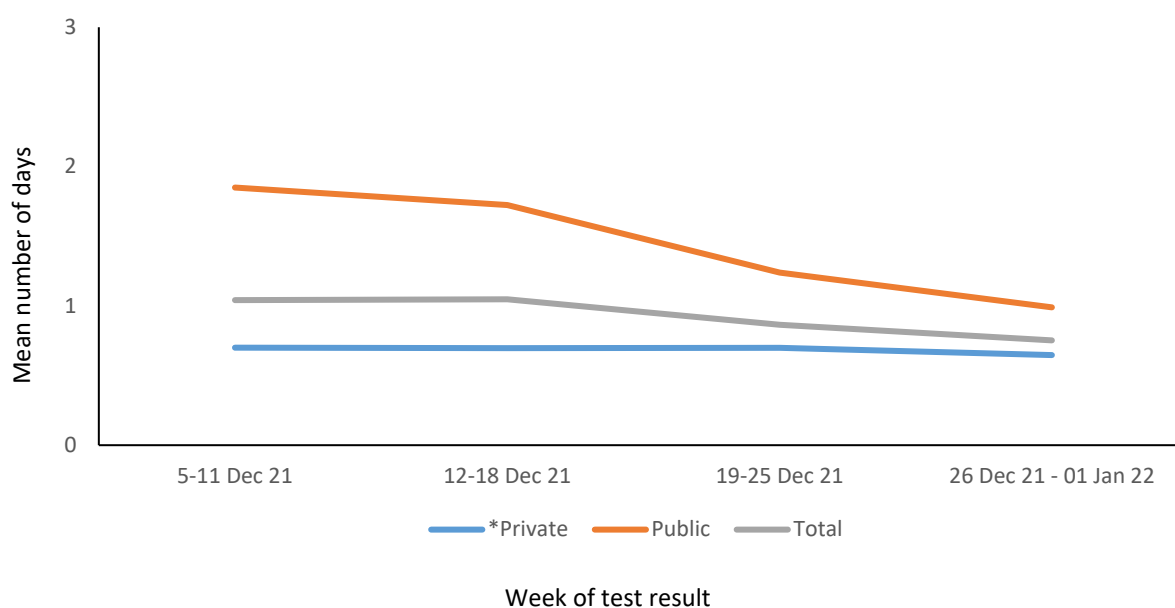
LIM331	Greater Giyani	LIM351	Blouberg	LIM365	Modimolle
LIM332	Greater Letaba	LIM352	Aganang	LIM366	Bela-Bela
LIM333	Greater Tzaneen	LIM353	Molemole	LIM367	Mogalakwena
LIM334	Ba-Phalaborwa	LIM354	Polokwane	LIM471	Ephraim Mogale
LIM335	Maruleng	LIM355	Lepele-Nkumpi	LIM472	Elias Motsoaledi
LIM341	Musina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



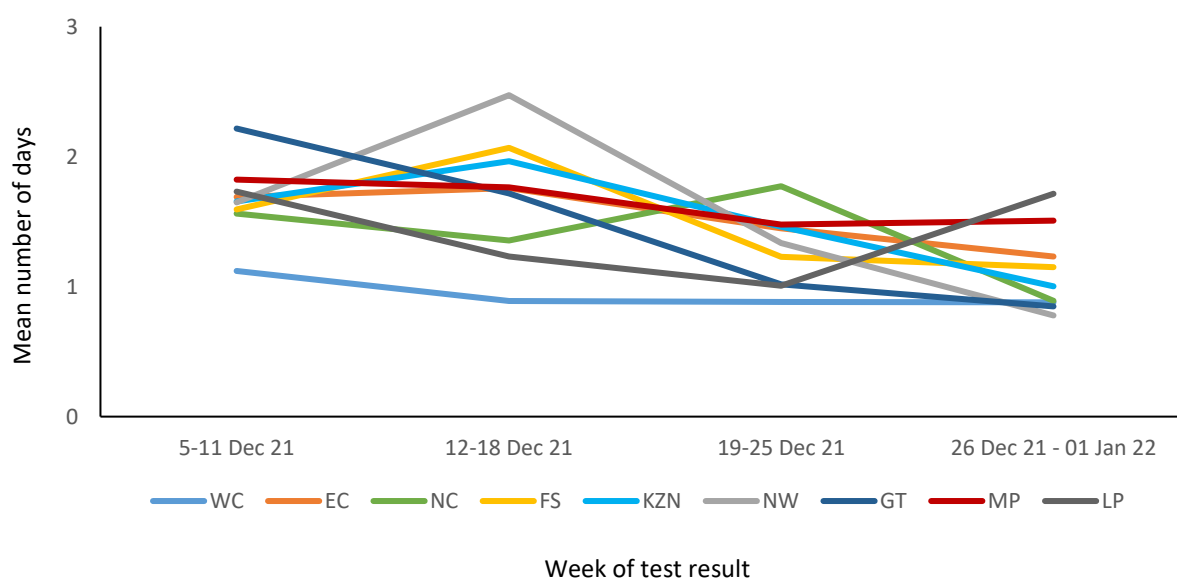
**Figure 15.** Proportion testing positive by health sub-district in Limpopo Province for the week of 26 December 2021 – 1 January 2022. Areas shaded white represent districts in which either (i) no tests were reported (ii) all tests were negative or (iii) the confidence interval exceeded 30%.



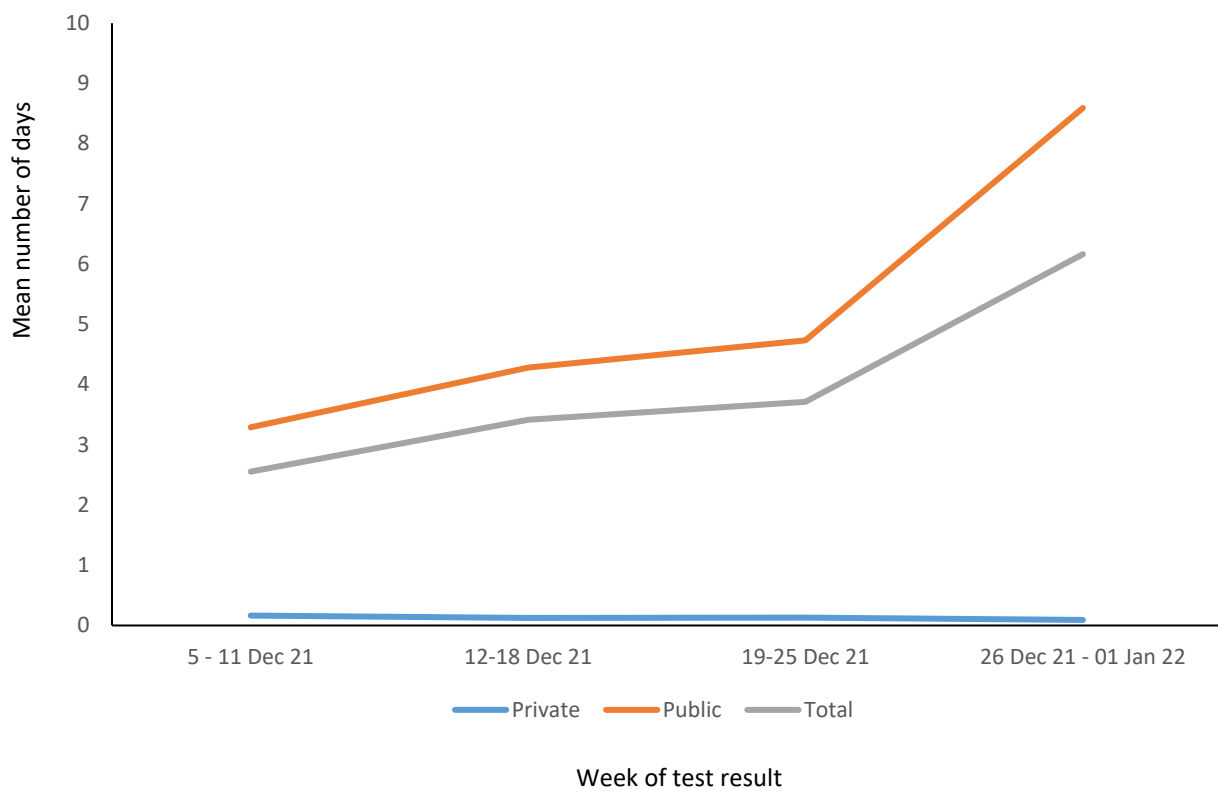
**Figure 16.** Number of antigen tests by province and overall percentage antigen tests, South Africa, 1 November 2020 – 1 January 2022. WC Western Cape; EC Eastern Cape; FS Free State; KZN KwaZulu-Natal; GA Gauteng; NC Northern Cape; NW North West; MP Mpumalanga; LP Limpopo



**Figure 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, 5 December 2021 – 1 January 2022. \* Excludes one private lab for week 51 (19-25 Dec 21).



**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, 5 December 2021 – 1 January 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 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, 5 December 2021 – 1 January 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 17<sup>th</sup> 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. 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 98% of public sector facilities in the country) and private (approximately 78% 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.
- Due to negative tests being erroneously reported in duplicate in some labs in the North West province, a large decrease in the percentage testing positive was observed in that province in week 51 (19-25 Dec 2021). This error is currently under investigation and will be corrected for future reports.