SOUTH AFRICA WEEK 1 2022

NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

### **OVERVIEW OF REPORT**

This report summarises national laboratory testing for SARS-CoV-2, the virus causing COVID-19, in South Africa. This report is based on data for specimens reported up to 8 January 2022 (Week 1 of 2022).

# HIGHLIGHTS

- The number of tests reported in week 1 of 2022 (n=232,141: 173,155 PCR and 58,986 antigen tests) was slightly higher than the number of tests reported in the previous week.
- In week 1 the testing rate was highest in the Western Cape (608 per 100,000 persons) and lowest in Limpopo (108 per 100,000 persons).
- In week 1 the percentage testing positive was 24.4%, which was 6.5% lower than the previous week.
- In week 1, compared to the previous week, the percentage testing positive decreased in all provinces.
- The percentage testing positive in week 1 was highest in the Northern Cape (35.5%) followed by the Western Cape (33.9%). The percentage testing positive was between 20-30% in Eastern Cape, Free State, KwaZulu-Natal, North West, Mpumalanga and Limpopo provinces, and was lowest in Gauteng (16.4%).

#### SOUTH AFRICA WEEK 1 2022

#### **Executive Summary:**

- In the period 1 March 2020 through 8 January 2022, 21,390,703 tests for SARS-CoV-2 have been reported nationally: 18,032,433 PCR and 3,358,270 antigen tests.
- The number of tests reported in week1 of 2021 (n=232,141: 173,155 PCR and 58,986 antigen tests) was slightly higher than the number of tests reported in the previous week.
- Gauteng reported the largest proportion of tests (33.8%), followed by KwaZulu-Natal (19.5%) and Western Cape (18.6%).
- The overall testing rate increased slightly from 343 per 100,000 persons in week 52 to 386 per 100,000 persons in week 1.
- In week 1 the testing rate increased in the Northern Cape and Gauteng and was similar to the previous week in all other provinces. The testing rate was highest in the Western Cape (608 per 100,000 persons) and lowest in Limpopo (108 per 100,000 persons).
- The testing rate in week 1 was highest in the ≥80 years age group (844 per 100,000 persons).
- In week 1 the percentage testing positive was 24.4%, which was 6.5% lower than the previous week (P<0.001).</li>
- In the past week, the percentage testing positive decreased by 6.8% in the public sector (32.4% in week 52 to 25.6% in week 1, P<0.001) and by 6.0% in the private sector (29.7% in week 52 to 23.7% in week 1, P<0.001).</li>
- In week 1, compared to the previous week, the percentage testing positive decreased in all provinces.

- The percentage testing positive in week 1 was highest in the Northern Cape (35.5%) followed by the Western Cape (33.9%). The percentage testing positive was between 20-30% in Eastern Cape, Free State, KwaZulu-Natal, North West, Mpumalanga and Limpopo, and was lowest in Gauteng (16.4%)
- The percentage testing positive was highest in the ≥80 years age group (32.8%).
- Health sub-districts showing the highest percentage testing positive were concentrated in the Western Cape (n=11), Northern Cape (n=8) and KwaZulu-Natal (n=3).
- Antigen tests accounted for 25.4% (58,986/232,141) of tests reported in week 1, however the number of antigen tests is likely underestimated due to under-reporting and delayed reporting of antigen tests.
- In week 1 the public sector accounted for 64.7% (38,142/58,986) 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 1 was 0.8 days; 0.9 days in the public sector and 0.8 days in the private sector. Turnaround times for public sector PCR tests decreased in Limpopo in the past week, and were <2 days in all provinces.</li>
- The mean turnaround time for antigen tests reported in week 1 was 7.1 days in the public sector and 0.1 days in the private sector.

SOUTH AFRICA WEEK 1 2022



DATE OF SPECIMEN COLLECTION

Figure 1. Number of SARS-CoV-2 tests reported by date of specimen collection, South Africa, 4 October 2020 – 8 January 2022. Blue line shows the 7-day moving average of the number of tests reported. Grey bars highlight weekend days and public holidays

#### SOUTH AFRICA WEEK 1 2022

Table 1. Weekly number of SARS-CoV-2 tests and positive tests reported, South Africa, 3 January 2021 – 8 January 2022

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)
1	03-Jan-21	501373 (2.3)	151070	30.1
2	10-Jan-21	418065 (2.0)	104820	25.1
3	17-Jan-21	327500 (1.5)	63274	19.3
4	24-Jan-21	249606 (1.2)	34648	13.9
5	31-Jan-21	203774 (1.0)	22378	11.0
6	07-Feb-21	193323 (0.9)	16476	8.5
7	14-Feb-21	190681 (0.9)	12191	6.4
8	21-Feb-21	184713 (0.9)	10388	5.6
9	28-Feb-21	189720 (0.9)	8694	4.6
10	07-Mar-21	193448 (0.9)	8340	4.3
11	14-Mar-21	185524 (0.9)	8156	4.4
12	21-Mar-21	173270 (0.8)	7356	4.2
13	28-Mar-21	163971 (0.8)	7063	4.3
14	04-Apr-21	180873 (0.8)	7292	4.0
15	11-Apr-21	185348 (0.9)	8847	4.8
16	18-Apr-21	184916 (0.9)	9471	5.1
17	25-Apr-21	160014 (0.7)	9181	5.7
18	02-May-21	193966 (0.9)	13461	6.9
19	09-May-21	240287 (1.1)	19937	8.3
20	16-May-21	248483 (1.2)	24212	9.7
21	23-May-21	262622 (1.2)	29778	11.3
22	30-May-21	270296 (1.3)	36103	13.4
23	06-Jun-21	337897 (1.6)	59449	17.6
24	13-Jun-21	370963 (1.7)	88079	23.7
25	20-Jun-21	432361 (2.0)	118610	27.4
26	27-Jun-21	490151 (2.3)	146606	29.9
27	04-Jul-21	443734 (2.1)	141418	31.9
28	11-Jul-21	320542 (1.5)	100912	31.5
29	18-Jul-21	312962 (1.5)	88405	28.2
	<u>25-Jul-21</u>	350260 (1.6)	88273	25.2
31	01-Aug-21	371074 (1.7)	88062	23.7
32	08-Aug-21	358763 (1.7)	83343	23.2
33	15-Aug-21	420639 (2.0)	95318	22.7
34	22-Aug-21	391108 (1.8)	78123	20.0
35	29-Aug-21	344779 (1.6)	55036	16.0
36	05-Sep-21	300038 (1.4)	38810	12.9
37	12-Sep-21	260410 (1.2)	23996	9.2
38	<u>19-Sep-21</u>	208700 (1.0)	13990	6.7
39	26-Sep-21	206375 (1.0)	9477	4.6
40	03-Oct-21	196115 (0.9)	6440	3.3
41	10-Oct-21	191177 (0.9)	5013	2.6
42	<u>17-Oct-21</u>	184798 (0.9)	3405	1.8
43	24-Oct-21	175753 (0.8)	2557	1.5
44	<u> </u>	179688 (0.8)	2090	1.2
45	07-Nov-21	193391 (0.9)	2306	1.2
46	14-Nov-21	195114 (0.9)	4800	2.5
47	21-Nov-21	221765 (1.0)	18890	8.5
48	28-Nov-21	376303 (1.8)	97856	26.0
49	05-Dec-21	485073 (2.3)	173594	35.8
50	12-Dec-21	413843 (1.9)	152607	36.9
51	19-Dec-21	327445 (1.5)	115396	35.2
52	20-Dec-21	206558 (1.0)	63791	30.9
1	02-Jan-22	232141 (1.1)	56647	24.4
	Total	21.390.703(100.0)	3.821.369	

SOUTH AFRICA WEEK 1 2022



DATE OF SPECIMEN COLLECTION

**Figure 2.** Percentage of tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March 2020 - 8 January 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 – 8 January 2022

#### SOUTH AFRICA WEEK 1 2022

Table 2. Weekly number of tests and positive tests reported by province, South Africa, 19 December - 8 January 2022

		19-25	5 Dec 2021	26 Dec 20	21 - 1 Jan 2022	2-8	Jan 2022	- 92	
Province	<b>Population</b> <sup>a</sup>	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 <sup>b</sup>
Western Cape	7113776	59798	27433 (45.9)	39037	15856 (40.6)	43229	14657 (33.9)	608	-6.7%
Eastern Cape	6676590	26729	12493 (46.7)	17408	7126 (40.9)	18776	5521 (29.4)	281	-11.5%
Northern Cape	1303047	7224	3012 (41.7)	5040	1956 (38.8)	6658	2361 (35.5)	511	-3.3%
Free State	2932441	18490	6327 (34.2)	11621	3289 (28.3)	12493	2658 (21.3)	426	-7.0%
KwaZulu-Natal	11513575	66980	28758 (42.9)	44924	16666 (37.1)	45271	12598 (27.8)	393	-9.3%
North West	4122854	21294	5509 (25.9)	8397	2242 (26.7)	10304	2204 (21.4)	250	-5.3%
Gauteng	15810388	100941	23077 (22.9)	63104	12178 (19.3)	78425	12824 (16.4)	496	-2.9%
Mpumalanga	4743584	15993	5056 (31.6)	11028	2538 (23.0)	10574	2248 (21.3)	223	-1.8%
Limpopo	5926724	9981	3727 (37.3)	5981	1938 (32.4)	6389	1572 (24.6)	108	-7.8%
Unknown		15	4 (26.7)	18	2 (11.1)	22	4 (18.2)		
Total	60142978	327445	115396 (35.2)	206558	63791 (30.9)	232141	56647 (24.4)	386	-6.5%

a 2021 Mid-year population Statistics SA

b Current week compared to previous weel



PROVINCE

Figure 4. Weekly percentage testing positive by province, South Africa, 19 Dec 2021- 8 January 2022. The horizontal blue line shows the national mean for week 1, beginning 2 January 2022

SOUTH AFRICA WEEK 1 2022



**Figure 5.** Testing rates per 100,000 persons and percentage testing positive by age group and sex, South Africa, week 1, 2-8 January 2022

**Table 3.** Health sub-districts with the highest proportion testing positive based on public and private sector data for the week of 2-8 January 2022

Health district or sub-district	Province	PTP (95% CI)	Previous week
Cederberg	Western Cape	0.754 (0.660-0.847)	0.754 (0.649-0.859)
Hantam	Northern Cape	0.748 (0.695-0.800)	0.555 (0.444-0.666)
Laingsburg	Western Cape	0.744 (0.607-0.881)	
Witzenberg	Western Cape	0.700 (0.659-0.741)	0.729 (0.681-0.777)
Richtersveld	Northern Cape	0.688 (0.542-0.834)	0.769 (0.628-0.910)
Umhlabuyalingana	KwaZulu-Natal	0.647 (0.597-0.698)	0.641 (0.594-0.688)
Hessequa	Western Cape	0.647 (0.572-0.722)	0.652 (0.600-0.704)
Bergrivier	Western Cape	0.642 (0.536-0.749)	0.691 (0.562-0.821)
Kareeberg	Northern Cape	0.630 (0.482-0.778)	
Theewaterskloof	Western Cape	0.614 (0.551-0.677)	0.651 (0.601-0.702)
Swellendam	Western Cape	0.614 (0.546-0.682)	0.574 (0.500-0.647)
Beaufort West	Western Cape	0.598 (0.518-0.677)	0.617 (0.531-0.702)
Cape Agulhas	Western Cape	0.595 (0.506-0.684)	0.751 (0.690-0.811)
Swartland	Western Cape	0.543 (0.474-0.612)	0.565 (0.505-0.626)
Baviaans	Eastern Cape	0.533 (0.398-0.667)	
Siyancuma	Northern Cape	0.530 (0.390-0.670)	0.629 (0.486-0.773)
Emthanjeni	Northern Cape		0.733 (0.630-0.836)
Karoo Hoogland	Northern Cape	0.521 (0.387-0.654)	
Mier	Northern Cape	0.520 (0.384-0.656)	
Matzikama	Western Cape	0.516 (0.472-0.560)	0.497 (0.449-0.545)
Randfontein	Gauteng		0.664 (0.637-0.691)
Mtubatuba	KwaZulu-Natal	0.487 (0.347-0.627)	0.684 (0.556-0.812)
Senqu	Eastern Cape	0.481 (0.364-0.599)	0.423 (0.311-0.534)
Mpofana	KwaZulu-Natal	0.473 (0.368-0.527)	0.713 (0.595-0.830)
Khâi-Ma	Northern Cape	0.464 (0.350-0.577)	0.553 (0.428-0.679)

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 **higher** than, and CIs that do not overlap with, the previous week proportions and CIs.

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SOUTH AFRICA WEEK 1 2022



**Figure 6.** Proportion testing positive by health sub-district in South Africa for the week of 2-8 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 2-8 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%

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SOUTH AFRICA WEEK 1 2022



**Figure 8.** Proportion testing positive by health sub-district in the Eastern Cape Province for the week of 2-8 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 2-8 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%.

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SOUTH AFRICA WEEK 1 2022



Figure 10. Proportion testing positive by health sub-district in Free State Province for the week of 2-8 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 11. Proportion testing positive by health sub-district in KwaZulu-Natal Province for the week of 2-8 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%.

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SOUTH AFRICA WEEK 1 2022



**Figure 12.** Proportion testing positive by health sub-district in North West Province for the week of 2-8 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 13. Proportion testing positive by health sub-district in Gauteng Province for the week of 2-8 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%.

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SOUTH AFRICA WEEK 1 2022



**Figure 14.** Proportion testing positive by health sub-district in Mpumalanga Province for the week of 2-8 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 15. Proportion testing positive by health sub-district in Limpopo Province for the week of 2-8 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%.

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SOUTH AFRICA WEEK 1 2022



**Figure 16.** Number of antigen tests by province and overall percentage antigen tests, South Africa, 1 November 2020 – 8 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, 12 December 2021 – 8 January 2022.

\* Excludes one lab in the private sector for week 51 (19-25 Dec 2021)

SOUTH AFRICA WEEK 1 2022



WEEK OF TEST RESULT

**Figure 18.** Mean number of days between date of specimen collection and date of test result for PCR tests in the public sector by week of test result and province, South Africa, 12 December 2021 – 8 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, 12 December 2021 – 8 January 2022.

\* Excludes one lab in the private sector for week 1 (2-8 Jan 2022)

SOUTH AFRICA WEEK 1 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. 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. antigenbased tests or prioritisation of severe or at-risk cases during epidemic waves) used by different provinces makes percentage testing positive and number of reported tests difficult to interpret and compare.
- Health district and sub-district level were mapped based on the testing facility and not place of residence.
- Patient admission status was categorised based on the reported patient facility and may not reflect whether the patient was actually admitted to hospital.
- Antigen tests may be underestimated as they are used in a number of different settings and results may not be reported.