SOUTH AFRICA WEEK 33 2020

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 15 August 2020 (Week 33 of 2020).

HIGHLIGHTS

- In the period 1 March 2020 through 15 August 2020, 3,022,697 laboratory tests for SARS-CoV-2 have been conducted nationally
- Five provinces including Western Cape, Eastern Cape, KwaZulu-Natal, Free State and Gauteng continued to perform the majority (83%) of tests in week 33
- Free State province had highest testing rate (350 per 100,000 persons), however reduced testing rates were observed in all nine provinces
- The percentage testing positive has decreased week on week since week 29, and continued to decrease from 24.9% in week 32 to 20.4% in week 33
- Free state (29.8%), Northern Cape (28.9%), North West (27.9%) and Mpumalanga (26.9%) provinces had the highest percentage testing positive
- The percentage testing positive decreased in six provinces (Western Cape, Eastern Cape, Free State, KwaZulu-Natal, Gauteng, and Mpumalanga) and remained unchanged in Northern Cape, North West and Limpopo provinces
- The mean turnaround time decreased in week 33 was 3.3 days in the public sector and 1.4 days in the private sector.

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Methods

Testing for SARS-CoV-2 began on 28 January 2020 at the NICD and after the first case was confirmed on 5th March 2020, testing was expanded to a larger network of private and NHLS laboratories. Laboratory testing was conducted for people meeting the case definition for persons under investigation (PUI).

This definition was updated several times over the reporting period but at different times included (i) symptomatic individuals seeking testing, (ii) hospitalized 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.

Test results were automatically fed into a data warehouse after result authorisation. We excluded specimens collected outside South Africa and duplicate test results for an individual. 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 2019 mid-year population estimates from Statistics South Africa to calculate the testing rate, expressed as tests per 100 000 persons. Patient admission status was determined for public sector tests based on the reported patient facility. 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, and continuous variables with the students t-test, with a P-value<0.05 considered statistically significant.

Health district and sub-district level results included only public sector data, and were mapped based on the testing facility. Estimates of overall prevalence were derived using regression techniques.

Estimates were adjusted to produce district-specific positive test prevalence based on the average age profile, the average sex composition, and the average balance between clinical and CST tests across the entire public testing data for the week. This adjustment allows more accurate comparison of the proportion testing positive across districts.

The report includes tests conducted between 1 March 2020 (week 10), the week when the first case of COVID-19 was confirmed, and 15 August 2020 (week 33).

Testing volumes and proportion testing positive

From 1 March through 15 August 2020, 3,022,697 laboratory tests for SARS-CoV-2 were performed. The number of tests performed increased to week 21, however decreased in weeks 22 and 23 due to a limited supply of extraction and testing kits. Increased volumes of tests were observed week on week from week 24 to week 28, with the highest number of tests performed in week 28 (n=272,652).

Testing volumes have continued to decrease since week 29, with 107,416 tests performed in week 33. All tests for samples collected in the previous week may not yet be reflected. Reduced testing volumes were observed over weekends and public holidays (Figure 1).

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Figure 1. Number of laboratory tests conducted by date of specimen collection, South Africa, 1 March – 15 August 2020. Blue dotted line shows the 7-day moving average of the number of tests conducted. Grey bars highlight weekend days and public holidays.

The overall percentage testing positive from week 10 through 33 was 18.9% (Table 1). The percentage testing positive increased week on week from week 18 to a peak of 31.4% in week 29. Since week 30, there has been a 10.4% decrease in the percentage testing positive, and the percentage testing positive decreased from 24.9% in week 32 to 20.4% in week 33 (P<0.001) (Figure 2).

Week number	Week beginning	No. of tests n (%)	No. of positive tests	Percentage testing positive (%)
10	01-Mar	408 (0.0)	9	2.2
11	08-Mar	2323 (0.1)	88	3.8
12	15-Mar	21325 (0.7)	826	3.9
13	22-Mar	17040 (0.6)	466	2.7
14	29-Mar	17380 (0.6)	395	2.3
15	05-Apr	24618 (0.8)	567	2.3
16	12-Apr	41885 (1.4)	1044	2.5
17	19-Apr	75935 (2.5)	1939	2.6
18	26-Apr	89500 (3.0)	2902	3.2
19	03-May	136943 (4.5)	5555	4.1
20	10-May	156976 (5.2)	7385	4.7
21	17-May	155603 (5.1)	10547	6.8
22	24-May	141076 (4.7)	11722	8.3
23	31-May	135024 (4.5)	13507	10.0
24	07-Jun	153870 (5.1)	20465	13.3
25	14-Jun	162732 (5.4)	29786	18.3
26	21-Jun	219393 (7.3)	50286	22.9
27	28-Jun	269269 (8.9)	69470	25.8
28	05-Jul	272652 (9.0)	79914	29.3
29	12-Jul	250208 (8.3)	78603	31.4
	19-Jul	236379 (7.8)	72754	30.8
31	26-Jul	185713 (6.1)	53913	29.0
32	02-Aug	149029 (4.9)	37095	24.9
33	09-Aug	107416 (3.6)	21961	20.4
Total		3022697 (100.0)	571199	18.9

Table 1. Weekly number of tests conducted and positive tests, South Africa, 1 March – 15 August 2020

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Figure 2. Percentage of laboratory tests positive for SARS-CoV-2 by date of specimen collection, South Africa, 1 March – 15 August 2020. Blue dotted line shows the 7-day moving average of the percentage testing positive. Grey bars highlight weekend days and public holidays.

Testing in private and public sectors

From 1 March through 15 August, 1,380,589 laboratory tests were conducted in public sector laboratories, with 16.7% testing positive. Over this same period, private sector laboratories conducted 1,642,108 tests, with 20.8% testing positive (Table 2).

Overall the public sector has conducted 45.7% of tests and accounted for 40.3% of cases. From week 32 to week 33, the percentage testing positive decreased by 5.2% in the public sector and 3.9% in the private sectors, but remained higher in the private sector (21.2%) compared to the public sector (19.4%) (P<0.001). The mean turnaround time continued to

improve, and in week 33 was 2.3 days overall; 3.3 days in the public sector and 1.4 days in the private sector (Figure 3). Among tests conducted in the public sector, decreases in turnaround time were observed in the five provinces conducting the largest volumes of tests and was lowest in the Western Cape province (1.3 days) in the past week. (Figure 4). Although the turnaround time in week 33 remained highest in KwaZulu-Natal (5.8 days), the turnaround time in this province has decreased week on week from 11.5 days in week 29. Of the 28 NHLS laboratories performing testing for SARS-CoV-2, 22 had improved turnaround times in week 33 compared to the previous week, and 9 (32%) public sector laboratories had turnaround times >48 hours (Figure 5).

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Table 2. Weekly number of tests conducted and positive tests, by healthcare sector, South Africa, 1 March – 15 August 2020

		Publi	Public sector		te sector	Public sector percentage of		Ratio
Week number	Week beginning	Tests	Cases n (%)	Tests	Cases n (%)	Tests (%)	Cases (%)	of PTP ^a
10	01-Mar	251	5 (2.0)	157	4 (2.5)	61.5	55.6	0.782
11	08-Mar	349	12 (3.4)	1974	76 (3.9)	15.0	13.6	0.893
12	15-Mar	1345	51 (3.8)	19980	775 (3.9)	6.3	6.2	0.978
13	22-Mar	3358	123 (3.7)	13682	343 (2.5)	19.7	26.4	1.461
14	29-Mar	5618	159 (2.8)	11762	236 (2.0)	32.3	40.3	1.411
15	05-Apr	11352	319 (2.8)	13266	248 (1.9)	46.1	56.3	1.503
16	12-Apr	23787	608 (2.6)	18098	436 (2.4)	56.8	58.2	1.061
17	19-Apr	54201	1481 (2.7)	21734	458 (2.1)	71.4	76.4	1.297
18	26-Apr	66253	2294 (3.5)	23247	608 (2.6)	74.0	79.0	1.324
19	03-May	92373	4258 (4.6)	44570	1297 (2.9)	67.5	76.7	1.584
20	10-May	104980	5115 (4.9)	51996	2270 (4.4)	66.9	69.3	1.116
21	17-May	95484	6637 (7.0)	60119	3910 (6.5)	61.4	62.9	1.069
22	24-May	74310	5965 (8.0)	66766	5757 (8.6)	52.7	50.9	0.931
23	31-May	60309	6118 (10.1)	74715	7389 (9.9)	44.7	45.3	1.026
24	07-Jun	60072	7378 (12.3)	93798	13087 (14.0)	39.0	36.1	0.880
25	14-Jun	56077	11104 (19.8)	106655	18682 (17.5)	34.5	37.3	1.130
26	21-Jun	82746	18916 (22.9)	136647	31370 (23.0)	37.7	37.6	0.996
27	28-Jun	97479	25204 (25.9)	171790	44266 (25.8)	36.2	36.3	1.003
28	05-Jul	108168	30346 (28.1)	164484	49568 (30.1)	39.7	38.0	0.931
29	12-Jul	101410	29445 (29.0)	148798	49158 (33.0)	40.5	37.5	0.879
30	19-Jul	96424	28505 (29.6)	139955	44249 (31.6)	40.8	39.2	0.935
31	26-Jul	74072	21390 (28.9)	111641	32523 (29.1)	39.9	39.7	0.991
32	02-Aug	63875	15716 (24.6)	85154	21379 (25.1)	42.9	42.4	0.980
33	09-Aug	46296	8999 (19.4 <u>)</u>	61120	12962 (21.2)	43.1	41.0	0.917
	Total	1380589	230148 (16.7)	1642108	341051 (20.8)	45.7	40.3	0.803

^aRatio of percentage testing positive (PTP) in the public sector to the private sector calculated as (no. of cases/total tests in public sector)/ (no. of cases/total tests in private sector)



Figure 3. Mean number of days between date of specimen collection and date of test result, by week of test result, South Africa, 19 July – 15 August 2020

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Figure 4. Mean number of days between date of specimen collection and date of test result, by week of test result and province, public sector, South Africa, 19 July – 15 August 2020. WC, Western Cape; EC, Eastern Cape; FS, Free State; KZN, KwaZulu-Natal, GT, Gauteng



Figure 5. Mean number of days between date of specimen collection and date of test result, by public sector laboratory, 26 July - 15 August 2020. The horizontal black line indicates 48-hour turnaround time (TAT).

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Testing by province

Gauteng continued to perform the largest number of tests in week 33 accounting for 30.4% of tests, followed by KwaZulu-Natal, which accounted for 22.4% of tests (Table 3).

Five provinces including Western Cape, Eastern Cape, KwaZulu-Natal, Free State and Gauteng performed the majority of tests (83%) in week 33, with Free State continuing to have the highest testing rate (350 per 100,000 persons) (Figure 6). Compared to the previous week, all nine provinces had reduced testing rates. Free state (29.8%), Northern Cape (28.9%), North West (27.9%) and Mpumalanga (26.9%) provinces had the highest percentage testing positive in week 33 (Figure 7). Compared to the previous week, the percentage testing positive decreased in six provinces (Western Cape (P<0.001), Eastern Cape (P<0.001), Free State (P=0.006), KwaZulu-Natal (P<0.001), Gauteng (P<0.001), and Mpumalanga (P<0.001).

The percentage testing positive in week 33 compared to week 32 did not change in Northern Cape, North West and Limpopo provinces. The percentage testing positive was higher than the national average, not weighted for population size, in the Northern Cape, Free State, North West and Mpumalanga provinces (Figure 7).



WEEK START DATE (WEEK NUMBER) OF SAMPLE COLLECTION

Figure 6. Testing rate per 100,000 persons by province and week of specimen collection, South Africa, 1 March – 15 August 2020.

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Table 3. Weekly number of tests performed and positive tests, by province, South Africa, 26 July-15 August 2020

		26 July-1 Aug		2-8	2-8 Aug		9-15 Aug	
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
Western Cape	6844272	20482	4157 (20.3)	17493	2948 (16.9)	14830	2207 (14.9)	217
Eastern Cape	6712276	14465	4262 (29.5)	10608	2467 (23.3)	7469	1242 (16.6)	111
Northern Cape	1263875	5987	1391 (23.2)	5249	1475 (28.1)	3056	883 (28.9)	242
Free State	2887465	17366	5782 (33.3)	13658	4297 (31.5)	10116	3014 (29.8)	350
KwaZulu-Natal	11289086	45121	14105 (31.3)	35079	9459 (27.0)	24037	4690 (19.5)	213
North West	4027160	6505	2208 (33.9)	5573	1557 (27.9)	3976	1111 (27.9)	99
Gauteng	15176115	55128	15825 (28.7)	45576	10610 (23.3)	32663	6080 (18.6)	215
Mpumalanga	4592187	11615	4014 (34.6)	10234	3120 (30.5)	6952	1873 (26.9)	151
Limpopo	5982584	6031	1309 (21.7)	5126	1100 (21.5)	4040	822 (20.3)	68
Unknown		3013	860 (28.5)	433	62 (14.3)	277	39 (14.1)	
Total	58750220	185713	53913 (29.0)	149029	37095 (24.9)	107416	21961 (20.4)	183

^a2019 Mid-year population Statistics SA



Figure 7. Weekly percentage testing positive, by province, South Africa, 26 July-15 August 2020. The horizontal black line shows the national mean for week 33, beginning 9 August 2020.

Testing in the public sector

In the public sector, the percentage testing positive continued to decrease from 24.6% in week 32 to 19.4% in week 33 (P<0.001) (Table 4). The percentage testing positive in week 33 was highest in North West (30.7%),

Mpumalanga (26.5%), Free State (26.2%) and Northern Cape (25.3%) provinces. The percentage testing positive in the public sector remains higher than the national average, not weighted for population size, in the Northern Cape, Free State, North West, Mpumalanga and Limpopo provinces (Figure 8).

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Table 4. Weekly number of tests conducted and positive tests in the public sector, by province, South Africa, 26 July-15 August 2020

	26 July-1 Aug		2-8	Aug	9-15 Aug		
Province	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	
Western Cape	8773	1960 (22.3)	7489	1417 (18.9)	6577	1052 (16.0)	
Eastern Cape	9262	2664 (28.8)	6899	1573 (22.8)	4780	806 (16.9)	
Northern Cape	3410	703 (20.6)	2969	764 (25.7)	1107	280 (25.3)	
Free State	9007	2665 (29.6)	6915	1936 (28.0)	5185	1356 (26.2)	
KwaZulu-Natal	17285	5925 (34.3)	15616	4321 (27.7)	11211	1978 (17.6)	
North West	1718	683 (39.8)	1691	526 (31.1)	1296	398 (30.7)	
Gauteng	19099	5075 (26.6)	17028	3804 (22.3)	12309	2199 (17.9)	
Mpumalanga	2982	1158 (38.8)	2953	886 (30.0)	1974	523 (26.5)	
Limpopo	2536	557 (22.0)	2315	489 (21.1)	1857	407 (21.9)	
Unknown	0	0 (0.0)	0	0 (0.0)	0	0 (0.0)	
Total	74072	21390 (28.9)	63875	15716 (24.6)	46296	8999 (19.4)	



Figure 8. Weekly percentage testing positive in the public sector, by province, South Africa, 26 July-15 August 2020. The horizontal black line shows the national mean for week 33, beginning 9 August 2020.

Public facilities with high proportions testing positive

Table 5 shows the 25 public clinics, hospitals and testing laboratories (where specimens were not tied to a particular facility), that had 25 or more specimens tested and at least five positive results in

the week of 9-15 August, with the highest proportion testing positive nationally. Unlike previous weeks, only two facilities show proportions testing positive greater than 50%. Only two of the facilities are in the Western Cape; none are in the Eastern Cape. Facilities in Gauteng (6), Free State (5), North West (5) and KwaZulu-Natal (4) contribute the most to the list.

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Table 5. Public healthcare facilities with a high proportion testing positive, 9-15 August 2020

Facility Name	Province	Tests	PTP (95% CI)
Facility 1	North West	30	0.600 (0.425;0.775)
Facility 2	KwaZulu-Natal	25	0.560 (0.365;0.755)
Facility 3	Free State	33	0.485 (0.314;0.655)
Facility 4	North West	34	0.471 (0.303;0.638)
Facility 5	Gauteng	66	0.470 (0.349;0.590)
Facility 6	Northern Cape	30	0.467 (0.288;0.645)
Facility 7	Gauteng	26	0.462 (0.270;0.653)
Facility 8	Free State	27	0.444 (0.257;0.632)
Facility 9	Free State	286	0.441 (0.383;0.498)
Facility 10	Free State	39	0.436 (0.280;0.592)
Facility 11	Mpumalanga	65	0.431 (0.310;0.551)
Facility 12	Gauteng	35	0.429 (0.265;0.593)
Facility 13	KwaZulu-Natal	33	0.424 (0.256;0.593)
Facility 14	Gauteng	144	0.424 (0.343;0.504)
Facility 15	KwaZulu-Natal	26	0.423 (0.233;0.613)
Facility 16	North West	64	0.422 (0.301;0.543)
Facility 17	Free State	31	0.419 (0.246;0.593)
Facility 18	North West	39	0.410 (0.256;0.565)
Facility 19	Gauteng	27	0.407 (0.222;0.593)
Facility 20	Western Cape	32	0.406 (0.236;0.576)
Facility 21	KwaZulu-Natal	47	0.404 (0.264;0.545)
Facility 22	Western Cape	38	0.395 (0.239;0.550)
Facility 23	North West	28	0.393 (0.212;0.574)
Facility 24	Mpumalanga	28	0.393 (0.212;0.574)
Facility 25	Gauteng	125	0.392 (0.306;0.478)

95% CI: 95% confidence interval; PTP: positive test proportion

Public sector testing: Health districtlevel results

The results, for the 25 municipalities and metropolitan health sub-districts showing the greatest proportions testing positive in the week of 9-15 August 2020 are shown in Table 6. The continuing shifting centre of the outbreak is indicated by the increasing dominance of districts in the North West, Mpumalanga, Northern Cape and KwaZulu-Natal provinces in this list. No districts from the Eastern Cape are in the top 25, and only three from the (rural) Western Cape remain on the list.

Another noteworthy feature is that no district shows a proportion testing positive greater than 50%, the first time this has been the case since the week ending 13 June 2020.

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Table 6. Health sub-districts with the highest proportion testing positive based on public sector data for the week of 9-15 August 2020

Health district or sub-district	Province	PTP (95% CI)	Previous week
Govan Mbeki	Mpumalanga	0.432 (0.286-0.578)	0.455 (0.362-0.549)
Greater Taung	NorthWest	0.410 (0.266-0.554)	
Phokwane	Northern Cape	0.401 (0.282-0.521)	0.284 (0.201-0.366)
Msukaligwa	Mpumalanga	0.373 (0.281-0.465)	0.382 (0.314-0.451)
Mohokare	Free State	0.372 (0.250-0.494)	0.416 (0.299-0.534)
Tlokwe City Council	NorthWest	0.369 (0.280-0.459)	0.425 (0.337-0.514)
Naledi	NorthWest	0.360 (0.250-0.470)	
City of Matlosana	NorthWest	0.346 (0.300-0.393)	0.427 (0.381-0.473)
Ngwathe	Free State	0.341 (0.256-0.425)	0.258 (0.197-0.319)
Lekwa	Mpumalanga	0.331 (0.187-0.475)	0.279 (0.188-0.369)
Greater Tzaneen	Limpopo	0.327 (0.225-0.430)	0.184 (0.112-0.256)
Albert Luthuli	Mpumalanga	0.326 (0.207-0.444)	0.317 (0.247-0.387)
eThekwini West	KwaZulu-Natal	0.324 (0.270-0.378)	0.390 (0.347-0.433)
Ramotshere Moiloa	NorthWest	0.321 (0.218-0.423)	0.181 (0.100-0.263)
Randfontein	Gauteng	0.318 (0.192-0.445)	0.296 (0.209-0.383)
Beaufort West	Western Cape	0.318 (0.198-0.438)	0.232 (0.147-0.316)
Pixley Ka Seme	Mpumalanga	0.316 (0.246-0.387)	0.336 (0.287-0.385)
Oudtshoorn	Western Cape	0.315 (0.260-0.370)	0.352 (0.296-0.408)
Lesedi	Gauteng	0.308 (0.202-0.414)	0.391 (0.285-0.497)
Endumeni	KwaZulu-Natal	0.307 (0.188-0.426)	0.299 (0.189-0.409)
Ekurhuleni North 1	Gauteng	0.305 (0.259-0.351)	0.327 (0.284-0.370)
Emalahleni	Mpumalanga	0.305 (0.233-0.376)	0.207 (0.120-0.293)
Kannaland	Western Cape	0.301 (0.189-0.414)	0.182 (0.089-0.275)
Nama Khoi	Northern Cape	0.301 (0.195-0.407)	
eThekwini North	KwaZulu-Natal	0.300 (0.268-0.333)	0.362 (0.331-0.392)

95% CI: 95% confidence interval; PTP: adjusted positive test proportion; PTP marked in red have current week proportions testing positive that are significantly higher than the previous week. PTP marked in blue have current week proportions testing positive that are significantly lower than the previous week.

The data for every district with a non-zero proportion testing positive or where the range of confidence interval is not more than 30% (15% either side of the point estimate) for the current week is presented graphically below.



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HEALTH SUB-DISTRICT

Figure 9. Proportions testing positive by health sub-districts in Western Cape, Eastern Cape, Gauteng, KwaZulu-Natal, North West, Free State, Limpopo, Mpumalanga and Northern Cape provinces based on public sector data for the week of 9-15 August 2020.

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Northern Cape



Figure 9. Proportions testing positive by health sub-districts in Western Cape, Eastern Cape, Gauteng, KwaZulu-Natal, North West, Free State, Limpopo, Mpumalanga and Northern Cape provinces based on public sector data for the week of 9-15 August 2020.

The spatial pattern of adjusted proportions testing positive in public facilities by health district and sub-district are shown for South Africa (Figure 10), and the four most affected provinces: Western Cape (Figure 11), Eastern Cape (Figure 12), Gauteng (Figure 13) and KwaZulu-Natal (Figure 14).

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Figure 10. Proportion testing positive by health sub-district based on public sector data for the week of 9 – 15 August 2020, South Africa. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.



Figure 11. Health sub-districts in the Western Cape province with a high proportion testing positive based on public sector data for the week of 9-15 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%

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Figure 12. Health sub-districts in the Eastern Cape province with a high proportion testing positive based on public sector data for the week of 9-15 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.



Figure 13. Health sub-districts in Gauteng Province with a high proportion testing positive based on public sector data for the week of 9-15 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

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Figure 14. Health sub-districts in KwaZulu-Natal Province with a high proportion testing positive based on public sector data for the week of 9-15 August 2020. Areas shaded white represent districts in which either (i) no tests were conducted, (ii) all tests were negative, or (iii) the confidence interval exceeded 30%.

Testing by patient admission status

In week 33, 26.0% of tests in the public sector were performed for hospitalised patients (Figure 15). Among the five provinces performing the largest volume of tests in week 33 (Western Cape, Eastern Cape, Free State, KwaZulu-Natal and Gauteng), the proportion of inpatient tests was highest in Western Cape (39.0%). The percentage testing positive in week 33 was slightly lower among inpatients (17.4%) compared to outpatients (20.5%), with the percentage in both groups continuing to decrease over recent weeks (Figure 16). In the public sector in week 33 the mean laboratory turnaround time was similar for inpatients (3.0 days) and outpatients (3.7 days), with a reduction in turnaround time observed for both inpatient and outpatient tests in the past week (Figure 17).



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Figure 15. Percentage of inpatient tests performed in the public sector by province, 19 July-15 August 2020



Figure 16. Percentage testing positive by patient admission status in the public sector, 19 July-15 August 2020



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Figure 17. Mean number of days between date of specimen collection and date of test result, by patient admission status and date of test result in the public sector, South Africa, 19 July-15 August 2020

Testing by age and sex

The mean age of individuals tested in week 33 was 40.2 years. The mean age of individuals with a positive test in week 33 (42.6 years) was similar to week 32 (42.3 years), and was the same in males and

females (Table 7). The sex ratio (the number of males per 100 females) of individuals with a positive test was 70.5 in week 33, similar to previous weeks. For both sexes, the proportion testing positive in week 33 was lower than the previous two weeks for all age groups (Figure 18).

Table 7. Mean age and sex ratio of individuals tested, South Africa, 19 July-15 August 2020

		Mean ag (ye	e of tested ears)	Mean age of (ye	Mean age of positive tests (years)		s (males / males)
Week number	Week beginning	Males	Females	Males	Females	Tested	Cases
30	19 July	39.0	39.3	41.5	41.2	73.1	69.4
31	26 July	39.6	40.0	42.3	42.3	77.3	70.9
32	2 August	39.7	40.0	42.6	42.2	77.9	69.7
33	9 August	40.0	40.4	42.7	42.6	76.8	70.5



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Figure 18. Weekly proportion testing positive by age group and sex, South Africa, 26 July-15 August 2020

From week 30 to week 33, the percentage testing positive decreased 10.3% (from 29.8% to 19.5%) in males and 10.2% in females (from 31.4% to 21.2% in females) (Table 8). In week 33 the percentage testing

positive was higher in females compared to males in the 0-19 (P=0.006), 20-39 (P<0.001) and 40-59 years (P<0.001) age groups.

Table 8. Percentage testing positive by sex and week, South Africa, 19 July-15 August 2020

Age (years)	19-25 July		26 July-1 Aug		2-8 August		9-15 August	
	Male	Female	Male	Female	Male	Female	Male	Female
0-19	22.0%	24.1%	21.1%	22.9%	17.5%	21.0%	13.3%	15.0%
20-39	27.8%	30.0%	24.9%	28.1%	21.3%	23.9%	18.3%	20.1%
40-59	33.1%	34.1%	30.4%	32.6%	25.8%	29.1%	22.3%	24.2%
60-69	36.5%	36.8%	34.1%	35.6%	28.9%	30.4%	22.5%	23.5%
70+	34.3%	34.6%	33.9%	35.6%	28.3%	28.6%	20.5%	21.9%
Total	29.8%	31.4%	27.6%	30.1%	23.4%	26.1%	19.5%	21.2%

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Limitations

- The backlog in testing of samples by public laboratories affects the reported numbers of tests performed. 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.
- The delay in testing affects the analysis of the testing data and identification of outbreak hotspots.
- Different and changing testing strategies (targeted vs. mass testing) used by different provinces makes percentage testing positive difficult to interpret and compare.
- Health district and sub-district level results included public-sector data only and were mapped based on the testing facility and not place of residence.
- Patient admission status was categorised based on the reported patient facility, which was only available for public sector data and may not reflect whether the patient was actually admitted to hospital.
- Province was determined based on the location of the laboratory where the specimen was registered, which may have resulted in misallocation of tests if the sample was registered in a different province to the patient residence.

CONCLUSIONS

There has been a reduction in weekly testing volumes since the peak in week 28, with further reductions observed in the past week. Five provinces including Western Cape, Eastern Cape, KwaZulu-Natal, Free State and Gauteng continued to perform the majority (83%) of tests. Free State province had the highest testing rate (350 per 100,000 persons), however compared to the previous week, all nine provinces had reduced testing rates.

The percentage testing positive increased to a peak of 31.4% in week 29 and has subsequently decreased week on week to 20.4% in week 33. Free state (29.8%), Northern Cape (28.9%), North West (27.9%) and Mpumalanga (26.9%) provinces had the highest percentage testing positive in week 33.

Compared to the previous week, the percentage testing positive decreased in six provinces (Western Cape, Eastern Cape, Free State, KwaZulu-Natal, Gauteng and Mpumalanga) and remained unchanged in Northern Cape, North West and Limpopo provinces. Percentage testing positive decreased in both sexes and across all age groups in week 33 compared to recent weeks. Laboratory turnaround times continued to improve in the public sector, and in week 33 were 1.4 days in the private sector and 3.3 days in the public sector.