

# COVID-19 TESTING SUMMARY

SOUTH AFRICA

WEEK 19 2020

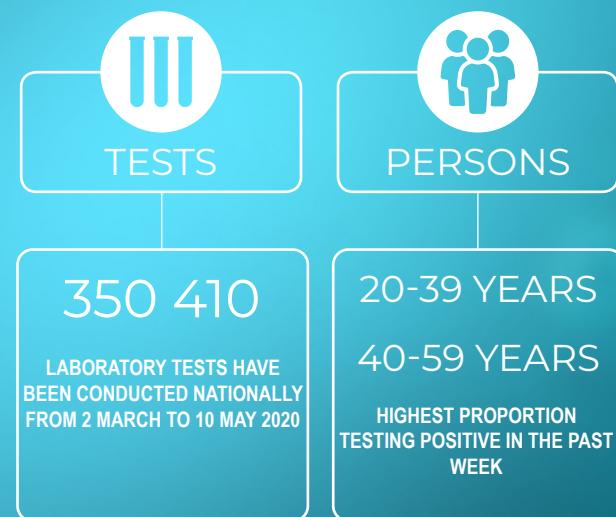
NATIONAL INSTITUTE FOR  
COMMUNICABLE DISEASES  
Division of the National Health Laboratory Service

## OVERVIEW

This report summarises national laboratory testing for SARS-CoV-2, the virus causing COVID-19, in South Africa. This report is based on data collected up to 10 May 2020 (week 19 of 2020). Note: COVID-19 is the name of the disease and SARS-CoV-2 is the name of the virus.

### Highlights

- In the period 02 March 2020 through 10 May 2020, 350 410 laboratory tests for SARS-CoV-2 have been conducted nationally
- Laboratory testing for SARS-CoV-2 increased week-on-week with a larger network of testing laboratories and the implementation of targeted community symptom screening and referral for testing in early April 2020. However, a decrease in testing volumes was observed in the past week, likely due to the limited supply of testing kits
- Overall proportion testing positive was 3.3%, however an increased proportion testing positive was observed in the week of 27 April – 3 May (3.6%) and 4-10 May (4.3%)
- Western Cape (12.1%) and Eastern Cape (7.1%) provinces continued to have the highest proportion testing positive in the past week
- Proportion testing positive in the past week was highest in the 20-39 and 40-59 years age groups, and was higher among males than females



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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 5 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. CST has been implemented differently in different provinces, and ranges 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. 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.

The report includes tests conducted between 2 March 2020 (week 10), the week when the first case of COVID-19 was confirmed, and 10 May 2020 (week 19).

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## TESTING VOLUMES AND PROPORTION TESTING POSITIVE

From 2 March through 10 May 2020, 350 410 laboratory tests for SARS-CoV-2 were conducted. The number of tests conducted has increased week on week to week 18, however decreased in week 19 (4-10 May). Reduced testing volumes were observed over weekends and public holidays (Figure 1).

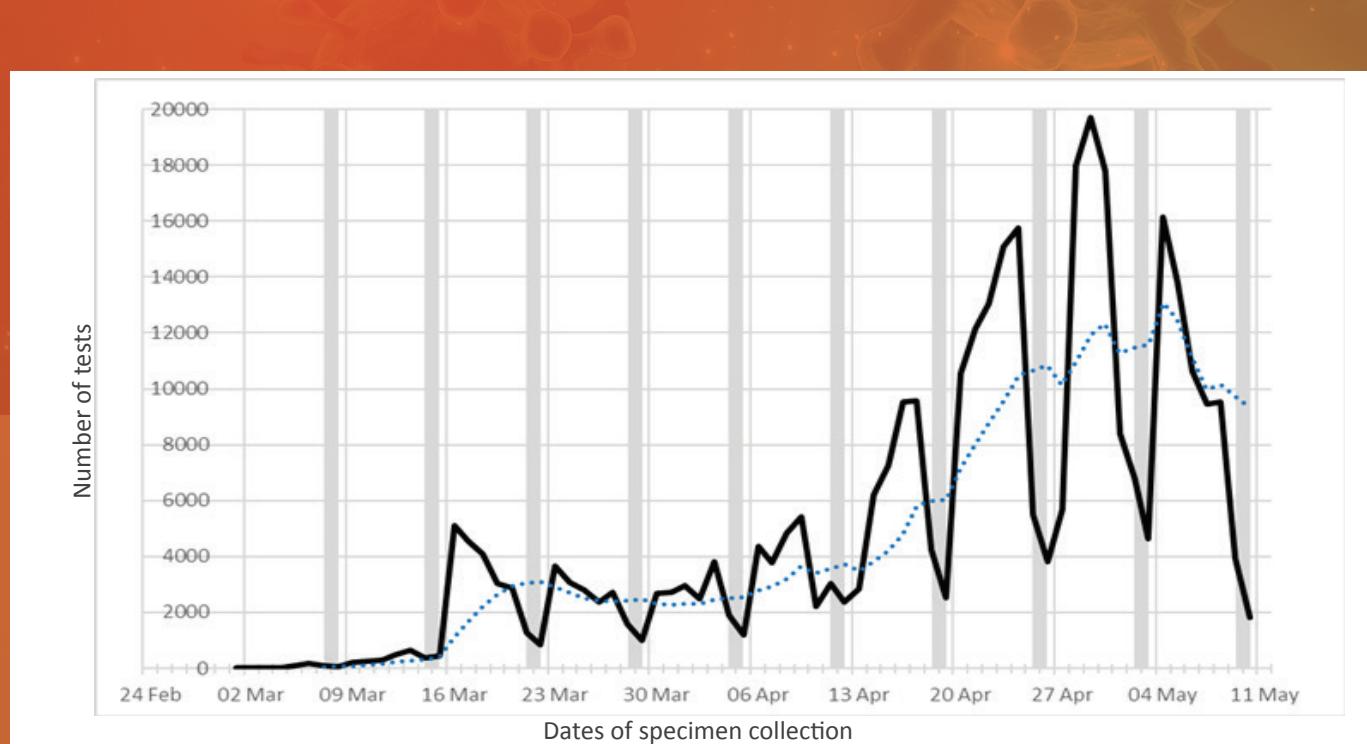


Figure 1. Number of laboratory tests conducted by date of specimen collection, South Africa, 2 March – 10 May 2020. Blue dotted line shows the 7-day moving average of the number of tests conducted. Grey bars highlight weekend days

The overall proportion testing positive from week 10 through 19 was 3.3%. While the proportion testing positive remained relatively consistent (2.7%-2.9%) since the week of 23 March, an increase in the proportion testing positive was observed in week 18 (27 April – 3 May) to 3.5% and a further increase in week 19 (4-10 May) to 4.3% (Table 1).

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Table 1. Weekly number of tests conducted and positive tests, South Africa, 2 March – 10 May 2020

Week number	Week beginning	No. of tests n(%)	No. of positive tests	Proportion testing positive (%)
10	02 Mar 20	456 (0.1)	13	2.85
11	09 Mar 20	2 750 (0.8)	117	4.25
12	16 Mar 20	21 771 (6.2)	877	4.03
13	23 Mar 20	17 260 (4.9)	469	2.72
14	30 Mar 20	17 785 (5.1)	478	2.69
15	06 Apr 20	26 034 (7.4)	727	2.79
16	13 Apr 20	42 145 (12.0)	1 207	2.86
17	20 Apr 20	75 911 (21.7)	2 165	2.85
18	27 Apr 20	81 035 (23.1)	2 871	3.54
19	04 May 20	65 263 (18.6)	2 778	4.26
Total		350 410 (100)	11 702	3.34

## TESTING IN PRIVATE AND PUBLIC SECTORS

From 2 March through 10 May, 187 115 laboratory tests were conducted in public sector laboratories, with 3.7% testing positive. Over this same period, private sector laboratories conducted 163 295 tests, with 2.9% testing positive (Table 2). Overall the public sector has conducted 53.4% of tests. The proportion of tests conducted in public sector laboratories increased from week 12 through 18, however decreased in week 19 to 38.3% of tests conducted. This is likely due to limited supplies of testing kits, and resulting backlogs in testing. The proportion of positive tests in the public sector compared to the private sector has increased over the past few weeks, accounting for 59.6% of positive tests overall. In the past four weeks, the proportion testing positive in the public sector has increased from 2.8% in week 16 to 6.4% in week 19. In the private sector the proportion testing positive has remained relatively consistent over this four-week period (range: 2.4%-2.9%).

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Table 2. Weekly number of tests conducted and positive tests, by healthcare sector, South Africa, 2 March – 10 May 2020

Week number	Week beginning	Public sector		Private sector		Public sector proportion of		Ratio of PTP <sup>a</sup>
		Tests	Cases n (%)	Tests	Cases n (%)	Tests (%)	Cases (%)	
10	02 Mar	311	8 (2.6)	145	5 (3.4)	68.2	61.5	0.746
11	09 Mar	395	24 (6.1)	2 355	93 (3.9)	14.4	20.5	1.539
12	16 Mar	1 506	78 (5.2)	20 265	799 (3.9)	6.9	8.9	1.314
13	23 Mar	3 679	123 (3.3)	13 581	346 (2.5)	21.3	26.2	1.312
14	30 Mar	5 854	192 (3.3)	11 931	286 (2.4)	32.9	40.2	1.368
15	06 Apr	12 261	408 (3.3)	13 773	319 (2.3)	47.1	56.1	1.437
16	13 Apr	24 335	682 (2.8)	17 810	525 (2.9)	57.7	56.5	0.951
17	20 Apr	55 395	1 670 (3.0)	20 516	495 (2.4)	73.0	77.1	1.249
18	27 Apr	58 363	2 192 (3.8)	22 672	679 (3.0)	72.0	76.3	1.254
19	04 May	25 016	1 596 (6.4)	40 247	1 182 (2.9)	38.3	57.5	2.172
Total		187 115	6 973 (3.7)	163 295	4 729 (2.9)	53.4	59.6	1.287

<sup>a</sup> Ratio of proportion 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)

## TESTING BY PROVINCE

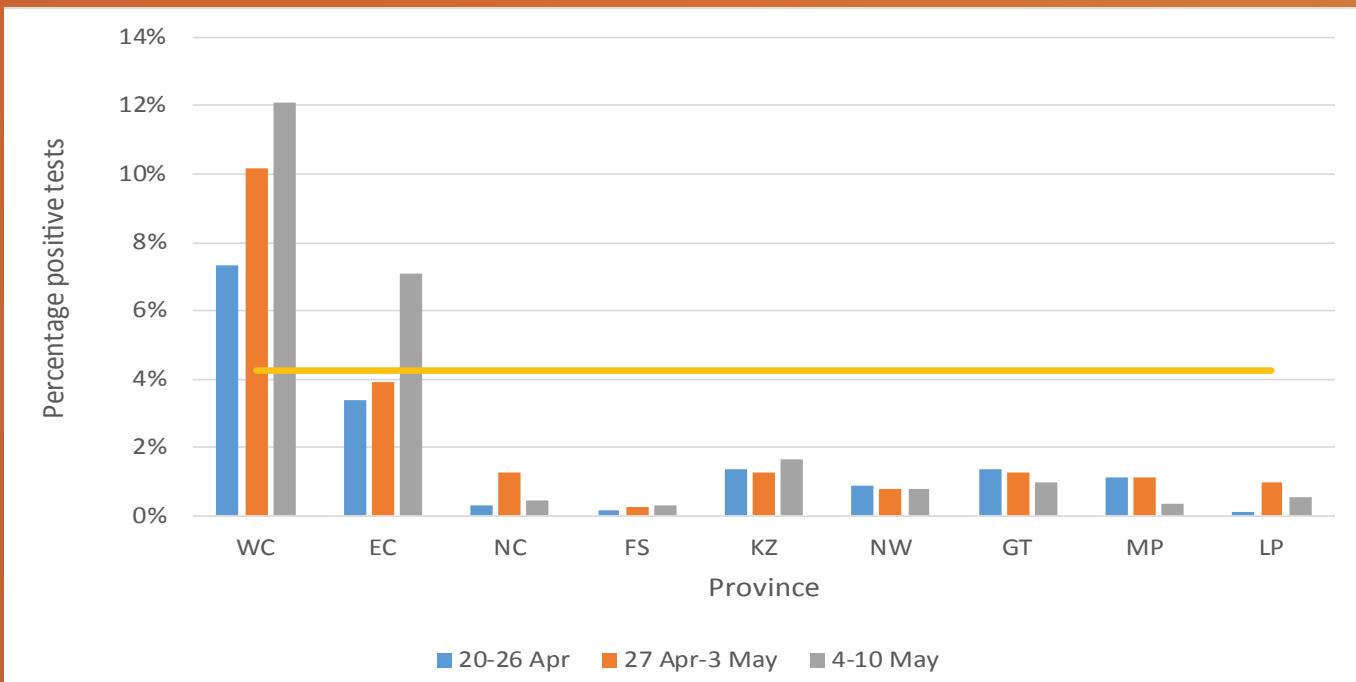
In the past week, Gauteng, Western Cape and KwaZulu Natal provinces conducted the largest numbers of tests, although the number of tests decreased in all these provinces compared to the previous two weeks (Table 3). Western Cape and Eastern Cape provinces continued to have the highest proportion testing positive in week 19, with this proportion increasing week on week (Figure 2).

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Table 3. Weekly number of tests conducted and positive tests, by province, South Africa, 20 April – 10 May 2020

	20-26 April		27 April – 3 May		4-10 May	
Province	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	17 171	1 259 (7.3)	18 057	1 838 (10.2)	16 020	1 937 (12.1)
Eastern Cape	9 226	313 (3.4)	11 377	447 (3.9)	5 692	404 (7.1)
KwaZulu Natal	16 316	227 (1.4)	16 627	210 (1.3)	10 904	181 (1.7)
Gauteng	23 477	326 (1.4)	23 669	300 (1.3)	20 603	203 (1.0)
North West	671	6 (0.9)	1 162	9 (0.8)	1 488	12 (0.8)
Limpopo	1 916	2 (0.1)	1 449	14 (1.0)	1 935	11 (0.6)
Northern Cape	348	1 (0.3)	700	9 (1.3)	1 266	6 (0.5)
Mpumalanga	1 258	14 (1.1)	2 300	26 (1.1)	3 174	12 (0.4)
Free State	4 707	7 (0.1)	5 518	15 (0.3)	3 665	11 (0.3)
Unknown	821	10 (1.2)	176	3 (1.7)	516	1 (0.2)
Total	75 911	2 165 (2.9)	81 035	2 871 (3.5)	65 263	2 778 (4.3)



WC: Western Cape; EC: Eastern Cape; NC: Northern Cape; FS: Free State; KZ: KwaZulu-Natal; NW: North West; GT: Gauteng; MP: Mpumalanga; LP: Limpopo.

Figure 2. Weekly proportion testing positive, by province, South Africa, 20 April – 10 May 2020. The horizontal yellow line shows the national average for the week beginning 4 May 2020.

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## TESTING IN THE PUBLIC SECTOR

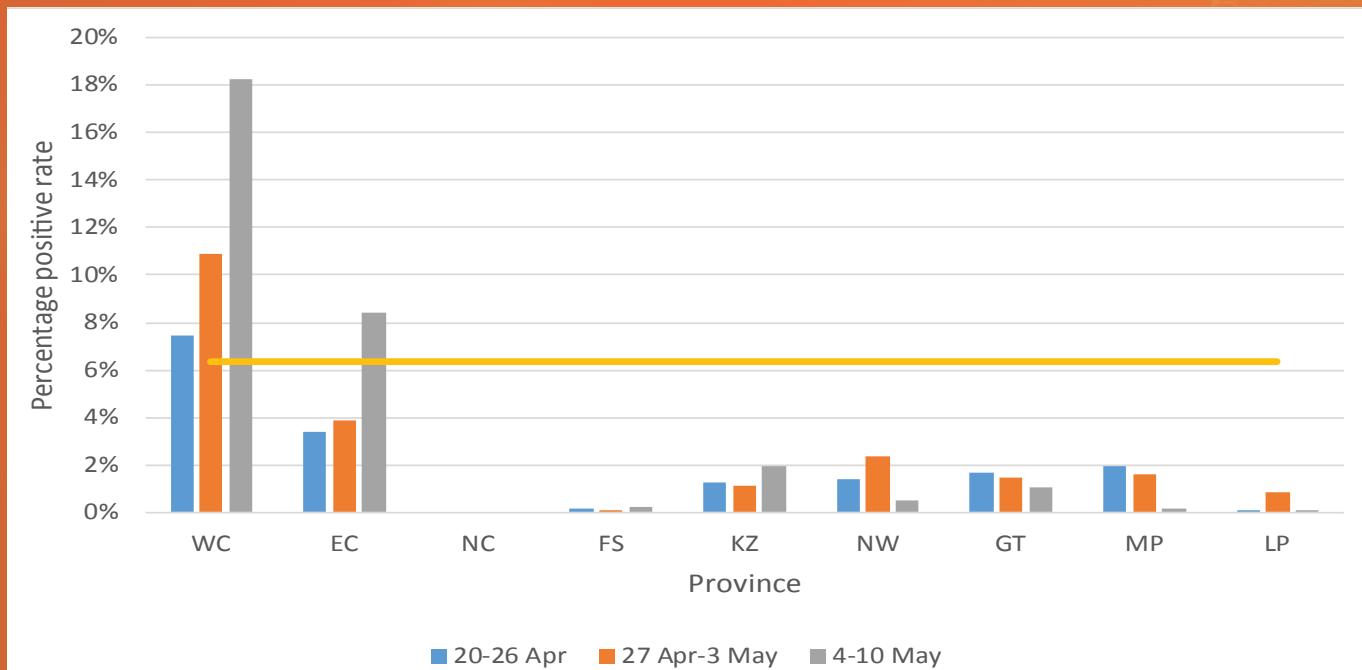
In the public sector, the proportion testing positive remains highest in the Western Cape, and has increased to 18.2% in the past week (Table 4). In addition, the proportion testing positive in the Eastern Cape has doubled in the past week. The proportion testing positive from the public sector remains higher than the national average, not weighted for population size, in the Western Cape and Eastern Cape provinces (Figure 3).

Table 4. Weekly number of tests conducted and positive tests in the public sector, by province, South Africa, 20 April – 10 May 2020

Province	20-26 April		27 April – 3 May		4-10 May	
	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)	No. of tests	No. positive tests (%)
Western Cape	13 015	973 (7.5)	12 598	1372 (10.9)	6 034	1101 (18.2)
Eastern Cape	8 196	278 (3.4)	10 523	409 (3.9)	4 051	340 (8.4)
Northern Cape	204	0 (0.0)	308	0 (0.0)	480	0 (0.0)
Free State	4 391	6 (0.1)	4 735	5 (0.1)	2 186	5 (0.2)
KwaZulu Natal	11 791	149 (1.3)	12 282	143 (1.2)	4 446	86 (1.9)
North West	281	4 (1.4)	337	8 (2.4)	191	1 (0.5)
Gauteng	14 905	246 (1.7)	15 284	225 (1.5)	5 575	60 (1.1)
Mpumalanga	619	12 (1.9)	1 217	20 (1.6)	1 107	2 (0.2)
Limpopo	1 600	1 (0.1)	1 075	9 (0.8)	946	1 (0.1)
Unknown	394	1 (0.3)	1	0 (0.0)	0	0 (0.0)
Total	55 396	1 670 (3.0)	58 360	2 191 (3.8)	25 016	1 596 (6.4)

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WC: Western Cape; EC: Eastern Cape; NC: Northern Cape; FS: Free State; KZ: KwaZulu-Natal; NW: North West; GT: Gauteng; MP: Mpumalanga; LP: Limpopo.

Figure 3. Weekly proportion testing positive in the public sector, by province, South Africa, 20 April – 10 May 2020. The horizontal yellow line shows the national average for week 19, beginning 4 May 2020

There are differences in the proportion testing positive at a provincial level between individuals attending or admitted to healthcare facilities (passive case finding), and those tested as part of the community screening and testing (CST) programme (active case finding). In the four provinces where the greatest volume of public testing has been conducted in the last week (4-10 May), the Western Cape, Eastern Cape, Gauteng and Free State, the proportion of positive tests was higher among individuals being tested in clinics and hospitals compared to those being tested as part of the CST programme (Table 5). In all four provinces the proportion testing positive was higher at healthcare facilities than through the CST programme, although the difference was less marked in the Western Cape possibly reflecting targeted community testing of clusters in this province.

Table 5. Number of tests conducted and proportion of positive tests in the public sector by case-finding method, South Africa, 4-10 May 2020

Province	Healthcare facilities <sup>a</sup>		Community <sup>b</sup>	
	No. of tests	Proportion testing positive (%)	No. of tests	Proportion testing positive (%)
Western Cape	4 340	19.0	1 694	16.4
Eastern Cape	2 036	14.0	2 015	2.7
KwaZulu Natal	2 735	2.8	1 711	0.5
Gauteng	2 693	1.7	2 882	0.5

<sup>a</sup> Individuals presenting or admitted to a healthcare facility

<sup>b</sup> Individuals tested through community screening

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## DEMOGRAPHIC PROFILE OF INDIVIDUALS TESTED

The mean age of individuals tested, and individuals testing positive, has remained stable over the last four weeks. However, the sex ratio (the number of males per 100 females) of individuals tested has decreased in the last week: for every 100 females tested, 75 males were tested. However, the sex ratio of cases increased in the last week: for every 100 cases identified among females, 83 cases were identified among males (Table 6). The proportion testing positive by age remained consistent among females over the past two weeks, however increased among males in most age groups in week 19 compared to week 18 (Figure 4).

Table 6. Mean age and sex ratio of individuals tested, South Africa, 13 April – 10 May 2020

Week number	Week beginning	Mean age of tested (years)		Mean age of cases (years)		Sex ratios (males / 100 females)	
		Males	Females	Males	Females	Tested	Cases
16	13 April	41.2	41.7	38.7	38.0	81.0	57.1
17	20 April	41.4	42.0	37.0	36.5	77.9	64.7
18	27 April	41.7	42.4	38.2	37.7	84.8	67.9
19	4 May	42.5	41.9	39.0	39.2	75.6	82.8

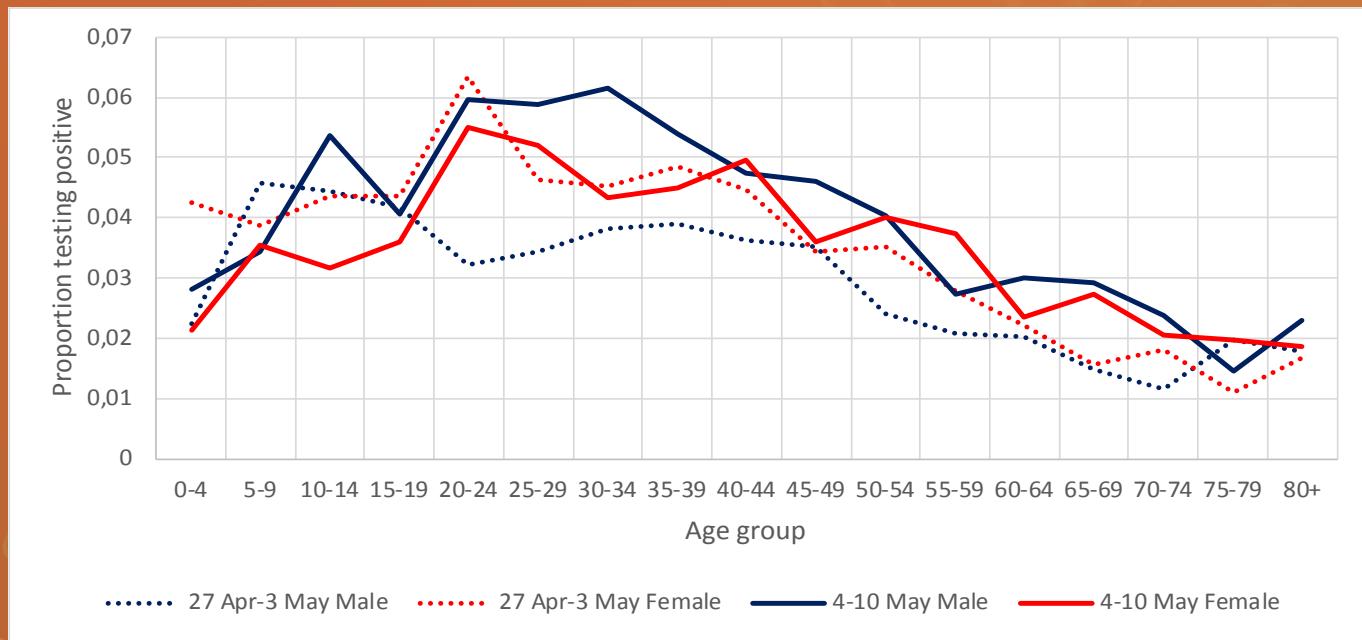


Figure 4. Weekly proportion testing positive by age group, South Africa, 27 April – 10 May 2020

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In the past week, the proportion testing positive in each age group was higher among males than females (Table 7). The proportion testing positive was highest in the 20-39 and 40-59 years age groups.

Table 7. Proportion testing positive by sex and week, South Africa, 13 April – 10 May 2020

Age (years)	13-19 April		20-26 April		27 April – 3 May		4-10 May	
	Male	Female	Male	Female	Male	Female	Male	Female
0-19	2.3%	3.3%	3.6%	3.9%	3.7%	4.3%	3.7%	3.1%
20-39	2.7%	4.0%	3.0%	4.0%	3.6%	4.9%	5.8%	4.8%
40-59	2.0%	2.8%	2.2%	2.4%	3.0%	3.6%	4.1%	4.1%
60-69	1.9%	2.0%	1.5%	1.6%	1.8%	1.9%	3.0%	2.5%
70+	1.3%	1.4%	1.6%	1.1%	1.6%	1.6%	2.1%	2.0%
Total	2.25%	3.20%	2.51%	3.03%	3.11%	3.88%	4.43%	4.04%

## LIMITATIONS

Backlogs in testing laboratories will affect the reported numbers of tests conducted, and if severe cases are prioritised for testing, this would likely result in an inflated proportion testing positive.

## CONCLUSIONS

Limited availability of testing kits has resulted in a decrease in testing volumes in the past week. The overall proportion testing positive has increased to 4.3% in week 19. Western Cape (12.1%) and Eastern Cape (7.1%) provinces continue to have the highest proportion testing positive.