

# COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

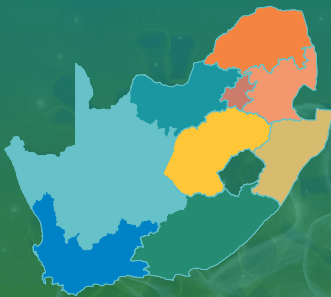


NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

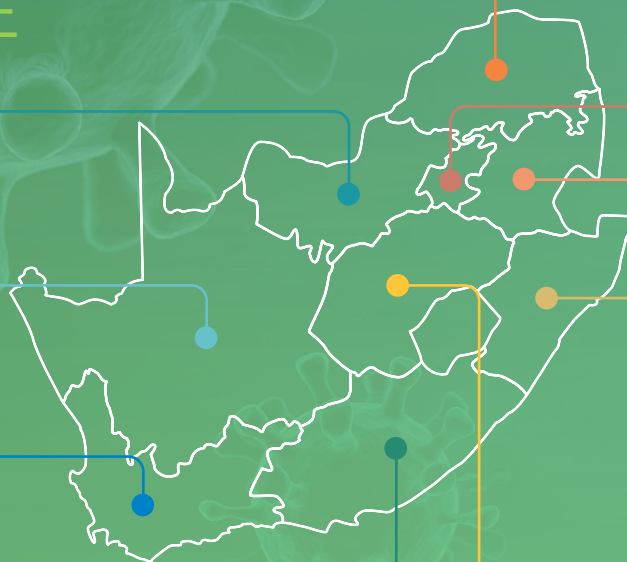
Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 45 2020

## CUMULATIVE DATA FROM



## PROVINCES AT A GLANCE



\* Incidence risk - cases per 100 000 persons  
\*\* based on samples collected/received in current reporting week

## SUMMARY

### Overview of report

Disease surveillance is a core function of the National Institute for Communicable Diseases (NICD), a division of the National Health Laboratory Service (NHLS). This report summarises data from a national laboratory-based surveillance system that is used to monitor the coronavirus disease 2019 (COVID-19) pandemic in South Africa. This report is based on data collected up to 7 November 2020 (week 45 of 2020). Note: COVID-19 is the name of the disease and SARS-CoV-2 is the name of the virus. Trends in numbers of new cases by province and age group may be affected by changes in testing practice and delays in testing of specimens. The numbers reported may change as more data become available.

### Highlights

- As of 7 November 2020, a total of 737 278 laboratory-confirmed COVID-19 cases had been detected in South Africa. Of these, 10 455 were cases reported since the last report. There was a 18.0% decrease in number of new cases detected in week 45 (8 909) compared to the number of new cases detected in week 44 (10 863).
- An additional 398 deaths were reported since the last report. The overall case-fatality ratio was 2.7% (19 809/737 278).
- To date, five provinces, Gauteng (230 296/737 278, 31.2%), KwaZulu-Natal (124 012/737 278, 16.8%), Western Cape (119 242/737 278, 16.2%), Eastern Cape (101 336/737 278, 13.7%) and Free State (57 935/737 278, 7.9%) continued to report the majority (632 821/737 278, 85.8%) of total COVID-19 cases in South Africa.
- In the past week, Eastern Cape Province reported the highest number of new cases (3 471/8 909, 39.0%), followed by Western Cape Province (1 563/8 909, 17.5%), and Gauteng Province (1 220/8 909, 13.7%).
- In the past week, six provinces reported cumulative incidence risk above 1 000 cases per 100 000 persons; Free State Province reported the highest cumulative incidence risk (1 978.0 cases per 100 000 persons), followed by Northern Cape Province (1 732.4 cases per 100 000 persons), Western Cape Province (1 702.1 cases per 100 000 persons), Eastern Cape Province (1 504.8 cases per 100 000 persons), Gauteng Province (1 486.9 cases per 100 000 persons), and KwaZulu-Natal Province (1 075.4 cases per 100 000 persons).
- In week 45 all provinces reported a decline in weekly incidence risk, compared to week 44, except the Western Cape Province which reported an increase of 2 cases per 100 000 (10.6% increase). The reduction ranged from 20 cases per 100 000 persons (45.0% reduction) in the Northern Cape Province to 1 case per 100 000 persons (2.3% reduction) in Eastern Cape Province.
- In the past week, Eastern Cape Province (51.5 cases per 100 000 persons) followed by Free State Province (24.5 cases per 100 000 persons), Northern Cape Province (24.2 cases per 100 000 persons), and Western Cape Province (22.3 cases per 100 000 persons), reported the highest weekly incidence risk. The weekly incidence risk in all the other provinces was less than 10 cases per 100 000 persons.
- In week 45, the highest weekly incidence risk was in cases aged 50-54 years (30.4 cases per 100 000 persons), followed by cases aged 55-59 years (29.4 cases per 100 000 persons). The lowest weekly incidence risk was in the 0-4-year age group (1.8 cases per 100 000 persons).
- To date, the majority of COVID-19 cases reported were female (55.6%, 425 290/730 912). This trend continued in the past week, 55.8% (4 923/8 854) of cases were female.
- Provincial summary by districts and age group can be accessed at [\(Link\)](#)

INCIDENCE RISK FOR WEEK 45

14,9  
CASES PER  
100 000  
PERSONS

39,0%  
OF CASES  
REPORTED IN  
EASTERN CAPE IN  
WEEK 45

IN WEEK 45,  
THE HIGHEST  
WEEKLY  
INCIDENCE RISK  
WAS IN CASES  
AGED 50-54  
YEARS (30.4  
CASES PER 100  
000 PERSONS)

## Methods

Testing for SARS-CoV-2 began on 28 January 2020 at the NICD and after the first case was confirmed in early March 2020, testing was expanded to a larger network of private and NHLS laboratories. Respiratory specimens were submitted from persons under investigation (PUI). Initially, tested individuals were those who had travelled to countries with COVID-19 transmission but the PUI definition was changed over time. Community symptom screening and referral for PCR testing was implemented in April 2020 but the strategy was changed to a more targeted approach in May 2020. Community screening was largely discontinued and testing efforts then focussed on areas identified as hot spots and on investigating clusters. Contacts of cases were traced and tested if symptomatic. In some provinces and in certain circumstances (e.g. closed settings, workplaces), asymptomatic contacts were tested. In recent weeks, testing has been prioritised for healthcare workers and hospitalised patients. Laboratories used any one of several in-house and commercial PCR assays to test for the presence of SARS-CoV-2 RNA. We excluded specimens collected outside South Africa. Date of specimen receipt in the laboratory was used when date of specimen collection was missing. A case of COVID-19 was defined as any person, resident in South Africa, with a single positive SARS-CoV-2 PCR test. For reports published from week 41 onwards we used mid-year population estimates from Statistics South Africa for 2020 to calculate the incidence risk (cumulative or weekly incidence), expressed as cases per 100 000 persons. In historical reports published from epidemiologic week 10 (during the start of COVID-19 epidemic in South Africa) to week 40, 2019 mid-year population estimates were used. Aggregate data on the number of deaths by province were obtained from the Department of Health. Data on number of tests conducted in the past week as reported in the simultaneously-published COVID-19 weekly testing report was used to calculate tests conducted per 100 000 population. We estimated the time-varying (weekly) doubling time of the COVID-19 epidemic for the provinces with sufficient data and from weeks with sufficient number of cases and complete data (week 12 to the week before the current reporting period). The unit of analysis (epidemiological week) was defined from Sunday to the following Saturday. We first estimated the weekly growth rate of the epidemic by fitting a linear regression model to the logarithm of the daily cumulative number of laboratory-confirmed COVID-19 cases. We then estimated the doubling time for each week using the following formula  $\log(2)/gr$  (where  $gr$  is the estimated weekly growth rate). An increase

in the doubling time may suggest a slowing of transmission but this may also be affected by changes in testing strategy or care seeking. Until the week 29 report, new cases were defined as all cases reported since the last report, irrespective of when the sample was collected. Subsequent to the week 29 report, new cases are now defined as cases detected in the past epidemiologic week based on date of sample collection or sample receipt. It is therefore possible for numbers reported as new cases for the current reporting week not to tally with total additional cases reported since the last report. This will be the case when there was a delay in reporting of cases.

## National and provincial trends of COVID-19 cases in South Africa

As of 7 November 2020, a total of 737 278 laboratory-confirmed COVID-19 cases were reported in South Africa. This is 10 455 more cases than the number reported in the last report. The number of new cases detected in week 45 (8 909) was lower than the number of new cases detected in week 44 (10 863), this represented a 18.0% decrease in number of new cases compared to the previous week. In the past week, Eastern Cape Province reported the highest number of new cases (3 471/8 909, 39.0%), followed by Western Cape Province (1 563/8 909, 17.5%), and Gauteng Province (1 220/8 909, 13.7%) (Table 1). Five provinces, Gauteng (230 296/737 278, 31.2%), KwaZulu-Natal (124 012/737 278, 16.8%), Western Cape (119 242/737 278, 16.2%), Eastern Cape (101 336/737 278, 13.7%) and Free State (57 935/737 278, 7.9%) continued to report the majority (632 821/737 278, 85.8%) of total COVID-19 cases in South Africa. In keeping with the data reported in the previous weeks, there was minimal change in percent contribution of cases in the different provinces from week 44 to week 45.

The cumulative incidence risk for the country increased from 1 221.6 cases per 100 000 persons in week 44 to 1 236.6 cases per 100 000 persons in week 45. The cumulative incidence risk varied by province over time (Figure 3). This is partly explained by testing differences by province (Table 1). The Free State Province reported the highest cumulative incidence risk (1 978.0 cases per 100 000 persons), followed by Northern Cape Province (1 732.4 cases per 100 000 persons), Western Cape Province (1 702.1 cases per 100 000 persons), Eastern Cape Province (1 504.8 cases per 100 000 persons), Gauteng Province (1 486.9 cases per 100 000 persons), and KwaZulu-Natal Province (1 075.4 cases per 100 000 persons). The other provinces continued to report cumulative incidence risk below 1000 cases per 100 000 persons, with Limpopo Province reporting the lowest cumulative incidence risk (306.4 cases per 100 000 persons).

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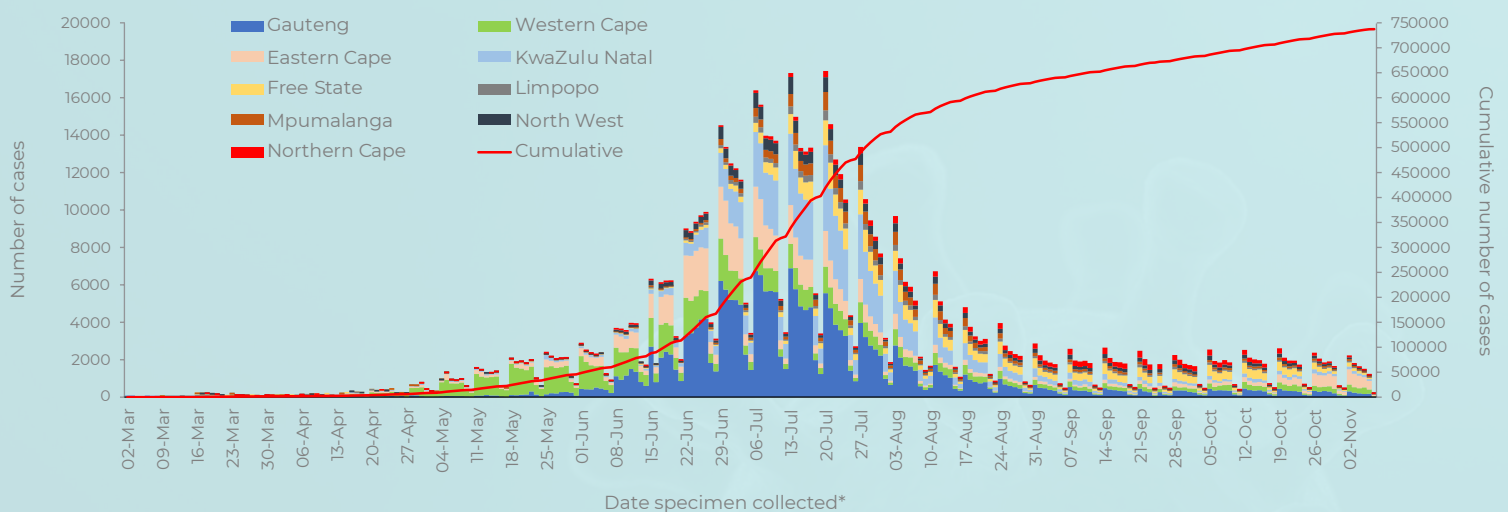
WEEK 45 2020

In the past week, Eastern Cape Province reported the highest weekly incidence risk (51.5 cases per 100 000 persons), followed by Free State Province (24.5 cases per 100 000 persons), Northern Cape Province (24.2 cases per 100 000 persons), and Western Cape Province (22.3 cases per 100 000 persons). The weekly incidence risk in all the other provinces was less than 10 cases per 100 000 persons. In the past week, all provinces reported a decline in weekly incidence risk, except for the Western Cape Province where weekly incidence risk increased by 2 cases per 100 000 persons (10.6% increase). The reduction in weekly incidence risk ranged from 20 cases per 100 000 persons (45.0% reduction) in the Northern Cape Province to 1 case per 100 000 persons (2.3% reduction) in Eastern Cape Province (Figure 4). Since the peak of weekly incidence risk experienced at different levels and weeks by the different provinces (Western Cape and Eastern Cape peaked earlier in week 27 and Northern Cape peaked last in week 30) all the provinces have been reporting an overall gradual decline in weekly incidence risk, however the Eastern Cape Province reported a steep increase in number of cases and weekly incidence risk in week 43 and 44. Among the five provinces reporting the majority of cases in South Africa to date, doubling time of number of cases varied with time, in week 44 it increased in four provinces; Free State Province (from 112.9 days to 196.0 days, 73.6% increase),

Gauteng Province (from 494.2 days to 585.0 days, 18.4% increase), KwaZulu-Natal Province (from 575.9 days to 591.8 days, 2.8% increase) and Western Cape Province (from 276.9 days to 343.9 days, 24.2% increase) (Figure 5). In week 44, the estimated doubling time of number of cases decreased in Eastern Cape Province (from 185.6 days to 112.0 days, 39.7% decrease) compared to week 43.

The case-fatality ratio was 2.7% (19 809/737 278); an additional 398 deaths were reported since the last report. The number of deaths reported in the past week was lower than the number reported in the previous week, 398 compared to 443. A crude case-fatality ratio (CFR) calculated in this way (number of deaths/number of diagnosed cases) is subject to numerous limitations. Because deaths are delayed in relation to cases, as case numbers decrease rapidly, the crude case fatality ratio may increase as a result of a more rapid reduction in the denominator compared to the numerator. The CFR may be an underestimate because deaths are more likely to be reported if a patient with COVID-19 died in hospital and deaths out of hospital may be missed; in addition, occurrence and reporting of deaths may be delayed to several weeks after case diagnoses.

**Figure 1.** Number and cumulative number of laboratory-confirmed cases of COVID-19 by province and date of specimen collection, South Africa, 3 March-7 November 2020 (n=737 278)

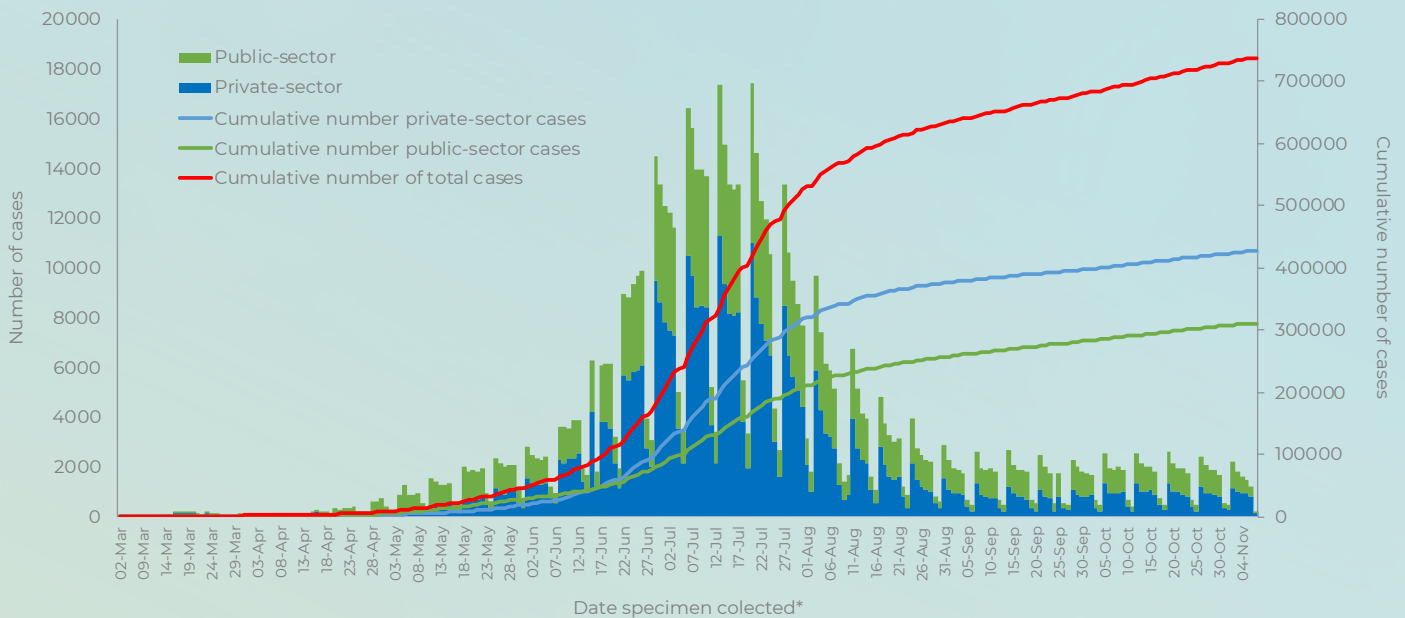


\*Date specimen received where date collected missing

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**Figure 2.** Number and cumulative number of laboratory-confirmed cases of COVID-19, by testing laboratory sector and date of specimen collection, South Africa, 3 March-7 November 2020 (n=737 278)



\*Date specimen receipt where collection date missing

**Table 1.** Number and cumulative/weekly incidence risk of laboratory-confirmed cases of COVID-19 and testing per 100 000 persons by province, South Africa, 3 March-7 November 2020 (n=737 278)

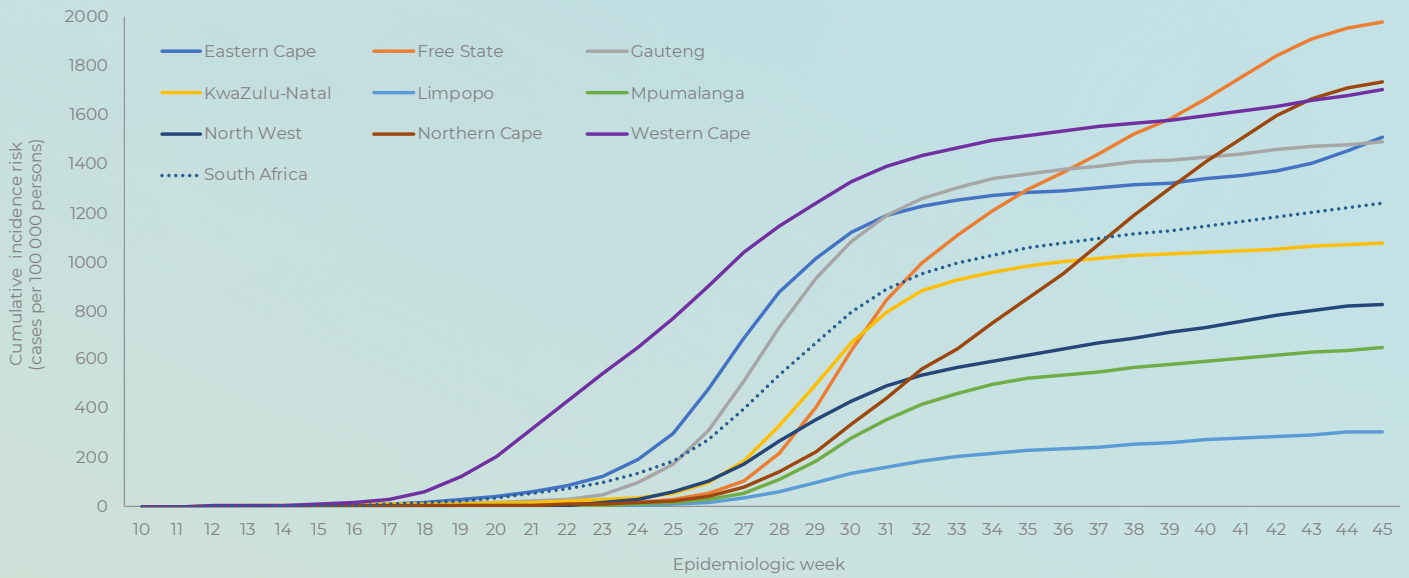
Province	Cumulative cases (n) (percentage, n/ total cases in South Africa)	New cases <sup>1</sup> detected in week 45 (1-7 November 2020), n (percentage <sup>2</sup> , n/total)	Population in mid-2020 <sup>3</sup> , n	Cumulative incidence risk (cases per 100 000 persons)	Incidence risk of new cases detected in week 45 (cases/100 000 persons)	Tests <sup>4</sup> per 100 000 persons, 1-7 November 2020
Eastern Cape	101 336 (13.7)	3 471 (39.0)	6 734 001	1 504.8	51.5	203.2
Free State	57 935 (7.9)	718 (8.1)	2 928 903	1 978.0	24.5	239.3
Gauteng	230 296 (31.2)	1 220 (13.7)	15 488 137	1 486.9	7.9	198.5
KwaZulu-Natal	124 012 (16.8)	681 (7.6)	11 531 628	1 075.4	5.9	136.8
Limpopo	17 930 (2.4)	259 (2.9)	5 852 553	306.4	4.4	40.6
Mpumalanga	30 273 (4.1)	352 (4.0)	4 679 786	646.9	7.5	110.0
North West	33 858 (4.6)	332 (3.7)	4 108 816	824.0	8.1	87.3
Northern Cape	22 396 (3.0)	313 (3.5)	1 292 786	1 732.4	24.2	234.9
Western Cape	119 242 (16.2)	1 563 (17.5)	7 005 741	1 702.1	22.3	249.0
Unknown	0	0	0			
<b>Total</b>	<b>737 278</b>	<b>8 909</b>	<b>59 622 350</b>	<b>1 236.6</b>	<b>14.9</b>	<b>165.7</b>

<sup>1</sup>New cases refer to cases whose samples were collected or received in the current reporting week; <sup>2</sup>Percentage=n/total number of new cases (specimen collected or received in current reporting week); <sup>3</sup>2020 Mid-year population Statistics South Africa <sup>4</sup>Data on number of tests conducted sourced from COVID-19 weekly testing report of the same reporting week

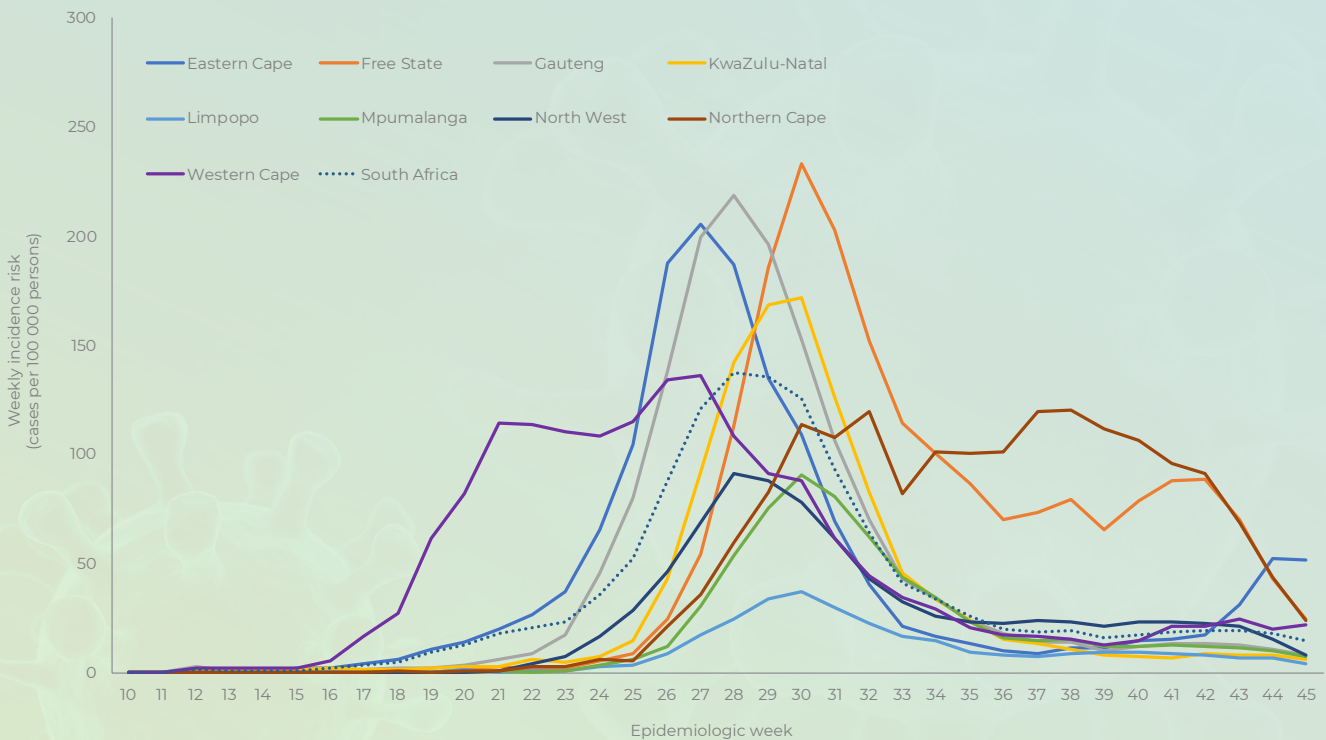
# COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

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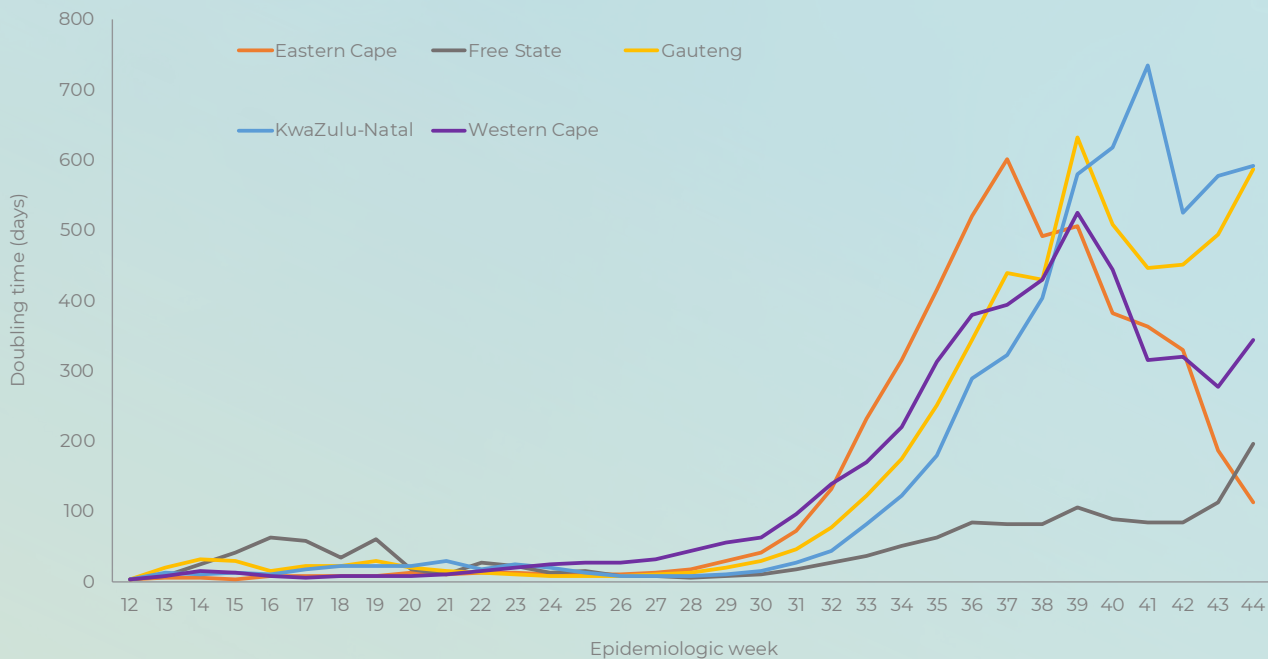
**Figure 3.** Cumulative incidence risk of PCR-confirmed cases of COVID-19 by province and epidemiologic week, South Africa, 3 March-7 November 2020 (n=737 278)



**Figure 4.** Weekly incidence risk of PCR-confirmed cases of COVID-19 by province and epidemiologic week, South Africa, 3 March-7 November 2020 (n=737 278)



**Figure 5.** Doubling time of number of PCR-confirmed cases of COVID-19 by province (for 5 provinces with the majority of cases) and epidemiologic week, South Africa, 23 March-31 October 2020 (n=625 168)



## Characteristics of COVID-19 cases in South Africa by age and sex

Cases of COVID-19 were reported across all age groups. The median age of COVID-19 cases in South Africa to date was 39 years with an interquartile range (IQR) of 29-52 years. The distribution of cases varied by age, with highest number of all cases to date in the 35-39-year (92 095/731 642, 12.6%) and 30-34-year (90 357/721 249, 12.3%) age groups (Figure 6). Similarly, among the cases reported in the past week, the highest number of cases was in the 35-39-year age group (1 035/8 858, 11.7%) followed by the 30-34-year age group (1 006/8 858, 11.4%). The median age for cases reported in week 45 was similar (40 years, IQR 29-53), to that of total cases (39 years). The highest cumulative incidence risk remained among cases aged 50-54 years (2 524.9 cases per 100 000 persons), followed by 55-59 years (2 403.1 cases per 100 000 persons) and 45-49 years (2 318.3 cases per 100 000 persons). The lowest cumulative incidence risk was reported in the younger age-groups, 152.4 cases per 100 000 persons and 184.0 cases per 100 000 persons in the 0-4- and 5-9-year age groups, respectively (Figure 7 and Table 2). The highest weekly incidence risk among cases detected in week 45 was reported in cases aged, 50-54 years (30.4 cases per 100 000 persons), followed by cases in the 55-59-year age group (29.4 cases per 100 000 persons) and the lowest weekly incidence risk was in the 0-4-year age group

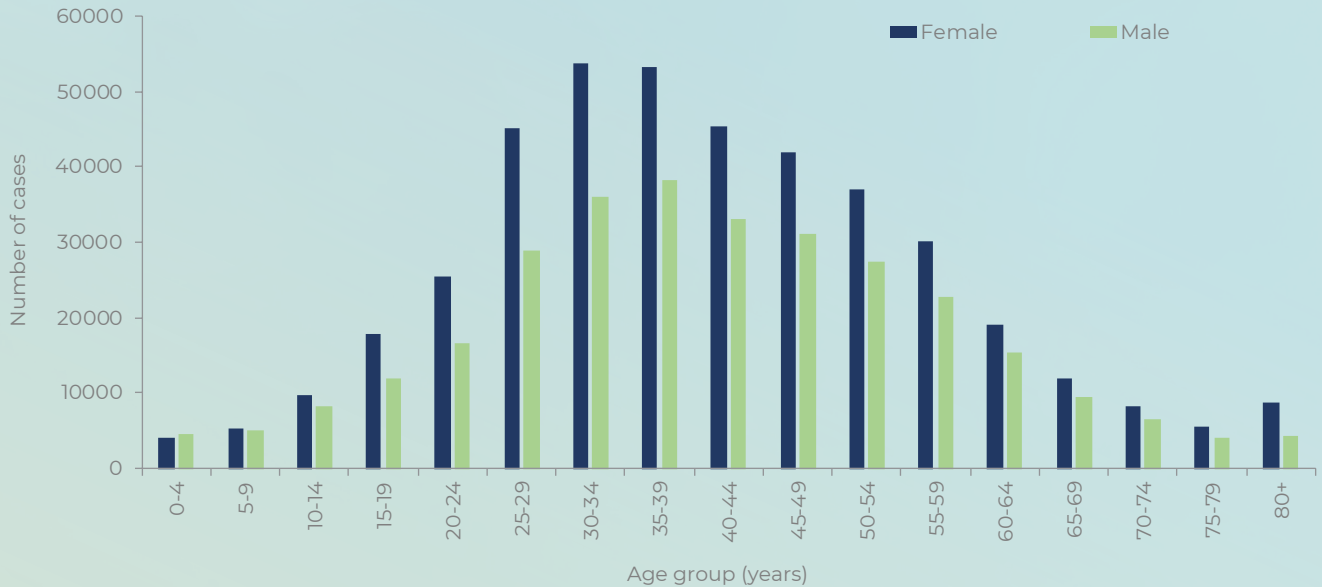
(1.8 cases per 100 000 persons).

To date, the majority of COVID-19 cases reported were female (58.2%, 425 290/730 912). This trend continued in the past week where 55.6%, (4 923/8 854) of cases were female. The cumulative incidence risk has remained consistently higher among females (1 385.0 cases per 100 000 persons) than among males (1 042.0 cases per 100 000 persons) (Figure 8). The peak cumulative incidence risk was in the same age group in both males and females; 50-54 years (2 662.4 cases per 100 000 persons in females and 2 334.1 cases per 100 000 persons in males) (Figure 9). In week 45, the highest weekly incidence risk for males was in the 80+ year age group (36.0 cases per 100 000 persons) and among females in the 50-54-year age group (30.2 cases per 100 000 persons). The high prevalence and incidence risk among females could be explained by the fact that females are likely to be more represented in occupations which put them in close proximity to others and thus exposing them to a higher risk of infection (e.g. teaching and health). This may also be partly explained by varying testing practices by age and sex (data not shown) and by different health seeking behaviour.

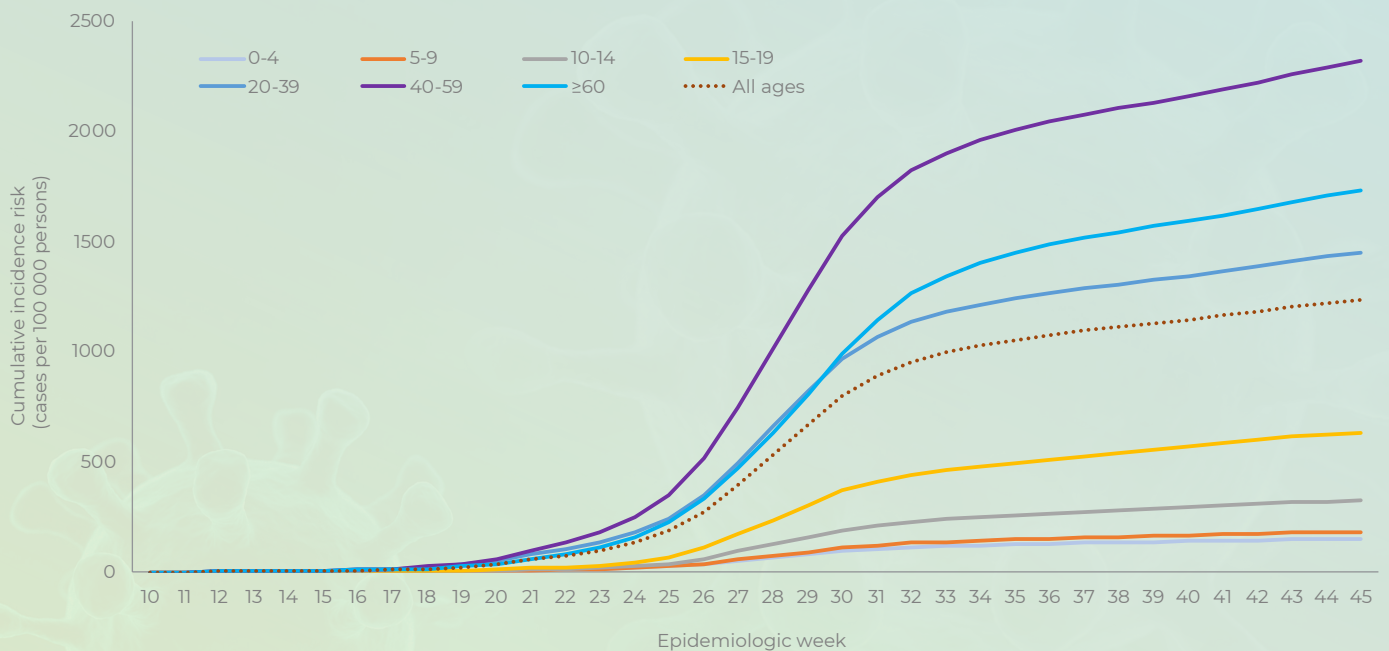
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**Figure 6.** Number of laboratory-confirmed cases of COVID-19 by age group and sex, South Africa, 3 March-7 November 2020 (n=730 912, sex/age missing for 6 366)



**Figure 7.** Cumulative incidence risk of PCR-confirmed cases of COVID-19 by age group in years and epidemiologic week, South Africa, 3 March-7 November 2020 (n=731 642, 5 636 missing age)

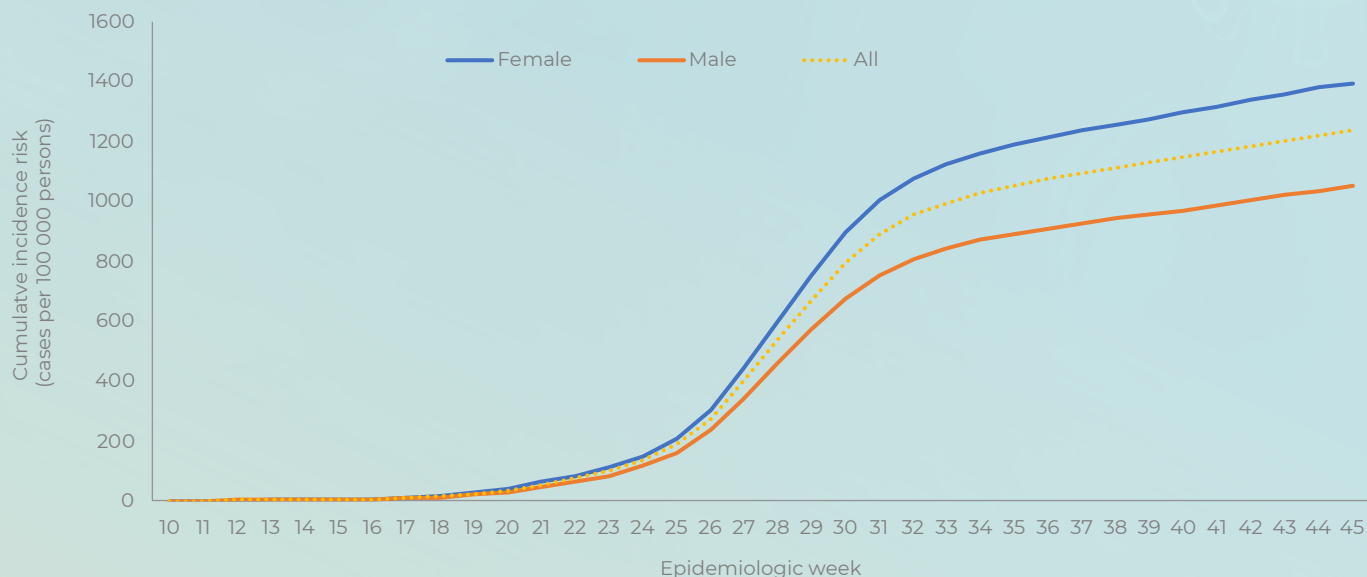




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**Figure 8.** Cumulative incidence risk by sex and epidemiologic week, South Africa, 3 March-7 November 2020 (n=730 912, sex missing for 5 790)

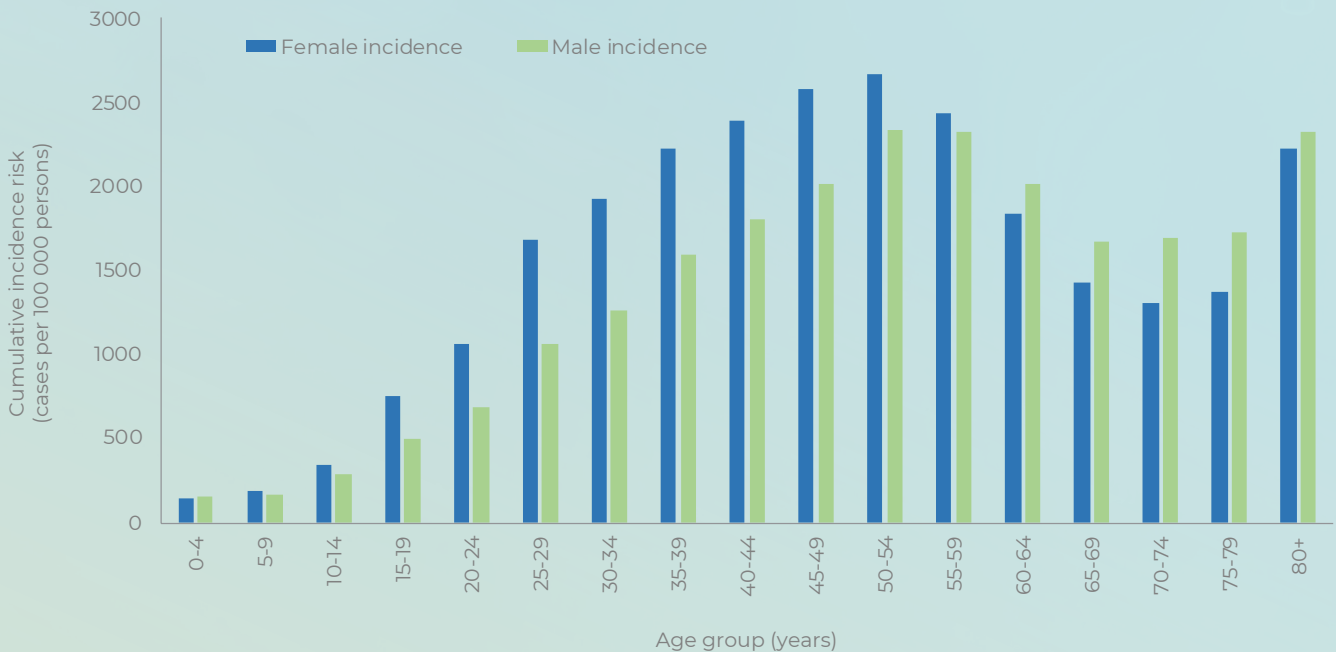


**Table 2.** Number of laboratory-confirmed cases of COVID-19 and cumulative/weekly incidence risk by age group, South Africa, 3 March-7 November 2020, n= 731 642, 5 636 missing age)

Age group (years)	Cumulative cases (n) (percentage, n/total cases in South Africa)	New cases <sup>1</sup> detected in week 45 (1-7 November, n (percentage <sup>2</sup> , n/total)	Population in mid-2020 <sup>3</sup> , n	Cumulative incidence risk (cases per 100 000 persons)	Incidence risk of new cases detected in week 45 (cases/100 000 persons)
0-4	8 753 (1.2)	106 (1.2)	5743 450	152.4	1.8
5-9	10 517 (1.4)	127 (1.4)	5715 952	184.0	2.2
10-14	18 170 (2.5)	263 (3.0)	5591 553	325.0	4.7
15-19	30 246 (4.1)	352 (4.0)	4774 579	633.5	7.4
20-24	42 412 (5.8)	619 (7.0)	4823 367	879.3	12.8
25-29	74 773 (10.2)	873 (9.9)	5420 754	1 379.4	16.1
30-34	90 357 (12.3)	1 006 (11.4)	5641 750	1 601.6	17.8
35-39	92 095 (12.6)	1 035 (11.7)	4798 293	1 919.3	21.6
40-44	78 881 (10.8)	884 (10.0)	3733 942	2 112.5	23.7
45-49	73 481 (10.0)	856 (9.7)	3169 648	2 318.3	27.0
50-54	64 921 (8.9)	782 (8.8)	2571 263	2 524.9	30.4
55-59	53 141 (7.3)	651 (7.3)	2211 309	2 403.1	29.4
60-64	34 660 (4.7)	504 (5.7)	1796 316	1 929.5	28.1
65-69	21 593 (3.0)	318 (3.6)	1408 665	1 532.9	22.6
70-74	14 807 (2.0)	204 (2.3)	1007 174	1 470.2	20.3
75-79	9 660 (1.3)	129 (1.5)	637 062	1 516.3	20.2
≥80	13 175 (1.8)	149 (1.7)	577 273	2 282.3	25.8
Unknown	5 636	51			
<b>Total</b>	<b>737 278</b>	<b>8 909</b>	<b>59 622 350</b>	<b>1 236.6</b>	<b>14.9</b>

<sup>1</sup>New cases refer to cases whose samples were collected or received in the current reporting week; <sup>2</sup>Percentage=n/total number of new cases (specimen collected or received in current reporting week); <sup>3</sup>2020 Mid-year population Statistics South Africa

**Figure 9.** Cumulative incidence risk by age group and sex, South Africa, 3 March-7 November 2020 (n= 730 912, sex/age missing for 6 366)



## Limitations

This report is based on laboratory-based surveillance of PCR-confirmed cases. The number of reported cases is heavily dependent on testing practices. Although trends over time and comparisons by geographic area are presented in this report, changes in testing practices over time or differences by region may partially explain the results. The crude case-fatality ratio reported here is subject to numerous limitations: it is likely to be an underestimation as reporting of deaths may be delayed and deaths which occurred outside health facilities may be missed. Differences in health-seeking behaviour by age group and sex could also contribute to observed differences in case numbers between groups. The reported doubling time estimates are affected by the number of tests conducted; if fewer tests are performed, this will also increase the doubling time estimate.

## Conclusions

The number of newly detected laboratory-confirmed cases of COVID-19 in South Africa continued to decrease week on week, since week 28 although sporadic increases in new numbers reported from some provinces in recent weeks have been noted. In the Eastern Cape Province a steep increase in number of cases and weekly incidence risk was reported in weeks 43 and 44, which seems to have stabilised in week 45. The numbers reported for week 45 may, however change as more data become available due to delays in reporting. To date, 737 278 cases, including 19 809 deaths have been reported. The weekly incidence risk of cases per 100 000 persons continued to decrease compared to the preceding week, except for Western Cape Province which reported an increase. The sustained decline in number of cases and weekly incidence risk may reflect a true slowing down of viral transmission, however the decreased doubling time of number of cases reported from Eastern Cape Province may indicate continued viral transmission within the province. In addition, changes in testing practices and/or access to testing could also contribute to changes in numbers of confirmed cases.