

# COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

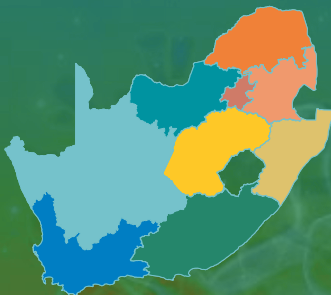


NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 39 2020

## CUMULATIVE DATA FROM



CASES

670 766  
IN TOTAL

8 038  
THIS WEEK

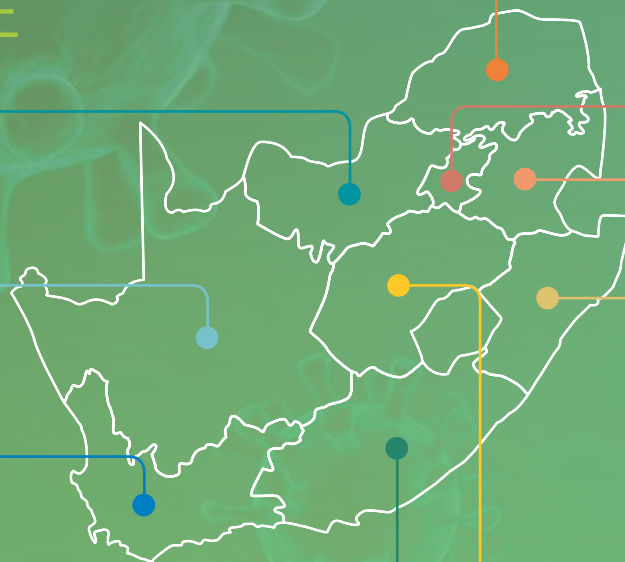


PERSONS

1 141.2  
INCIDENCE RISK\*

40  
MEDIAN AGE

## 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 26 September 2020 (week 39 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 becomes available.

### Highlights

- As of 26 September 2020, a total of 670 766 laboratory-confirmed COVID-19 cases had been detected in South Africa. Of these, 9 555 were cases reported since the last report. There was a 29% decrease in number of new cases detected in week 39 (8 038) compared to the number of new cases detected in week 38 (11 359).
- An additional 445 deaths were reported since the last report. The overall case-fatality ratio was 2.4% (16 398/670 766).
- To date, five provinces, Gauteng (219 039/ 670 766, 32.7%), KwaZulu-Natal (118 731/670 766, 17.7%), Western Cape (110 430/670 766, 16.5%), Eastern Cape (88 892/670 766, 13.3%) and Free State (46 128/670 766, 6.9%) continued to report the majority (583 220/670 766, 86.9%) of total COVID-19 cases in South Africa.
- In the past week, Free State Province reported the highest number of new cases (1 655/8 038, 20.6%), replacing Gauteng Province (1 448/8 038, 18.0%), followed by Northern Cape Province (898/8 038, 11.2%).
- In the previous week, six provinces reported cumulative incidence risk above 1000 cases per 100 000 persons; Western Cape Province continued to report the highest cumulative incidence risk (1 613.5 cases per 100 000 persons), followed by Free State Province (1 597.5 cases per 100 000 persons), Gauteng Province (1 443.3 cases per 100 000 persons), Eastern Cape Province (1 324.3 cases per 100 000 persons), Northern Cape Province (1 285.2 cases per 100 000 persons), and KwaZulu-Natal Province (1 051.7 cases per 100 000 persons).
- In the past week all provinces reported a decline in weekly incidence risk, compared to week 38, which varied in magnitude by province, reduction ranged from 50 cases per 100 000 persons (41% reduction) in Northern Cape Province to 1 case per 100 000 persons (9% reduction) in Limpopo Province.
- Similar to the trend in the past five weeks, Northern Cape Province (71 cases per 100 000 persons) followed by Free State Province (57 cases per 100 000 persons) and North West Province (19 cases per 100 000 persons) reported the highest weekly incidence risk. The weekly incidence risk in all the other provinces was less than 20 cases per 100 000 persons.
- In week 39, the highest weekly incidence risk was in cases aged 50-54 years (25.5 cases per 100 000) replacing the ≥80 years age-group (which had the highest weekly incidence risk in the past weeks). The lowest weekly incidence risk was in the 0-4-year age group (2.0 cases per 100 000 persons).
- To date, the majority of COVID-19 cases reported were female (57.3%, 387 618/ 664 979). This trend continued in the past week, 57.6% (4 548/7 899) of cases were female.

INCIDENCE  
RISK FOR  
WEEK 39

13.7

CASES PER  
100 000  
PERSONS

20.6%

OF CASES  
REPORTED IN  
FREE STATE IN  
WEEK 39

50-54

YEAR AGE  
GROUP HAS  
HIGHEST  
INCIDENCE  
RISK FOR  
WEEK 39

## 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. We used 2019 mid-year population estimates from Statistics South Africa to calculate the incidence risk (cumulative or weekly incidence), expressed as cases per 100 000 persons. 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 26 September 2020, a total of 670 766 laboratory-confirmed COVID-19 cases were reported in South Africa. This is 9 555 more cases than the number reported in the last report. The number of new cases detected in week 39 (8 038) was lower than the number of new cases detected in week 38 (11 359), this represented a 29.0% decrease compared to the previous week. In the past week, Free State Province reported the highest percentage of new cases (1 655/8 038, 20.6%), replacing Gauteng Province (1 448/8 038, 18.0%) which has been the province reporting highest weekly numbers in the past few weeks. Northern Cape (898/8 038, 11.2%) reported the third highest percentage of cases (Table 1). Five provinces, Gauteng (219 039/670 766, 32.7%), KwaZulu-Natal (118 731/670 766, 17.7%), Western Cape (110 430/670 766, 16.5%), Eastern Cape (88 892/670 766, 13.3%) and Free State (46 128/670 766, 6.9%) provinces continued to contribute the majority (583 220/670 766, 86.9%) 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 38 to week 39.

The cumulative incidence risk for the country increased from 1 127.6 cases per 100 000 persons in week 38 to 1 141.2 cases per 100 000 persons in week 39. The cumulative incidence risk varied by province over time (Figure 3). This is partly explained by testing differences by province (Table 1). The Western Cape Province had the highest cumulative incidence risk (1 613.5 cases per 100 000 persons) followed closely by Free State Province (1 597.5 cases per 100 000 persons), Gauteng Province (1 443.3 cases per 100 000 persons), Eastern Cape Province (1 324.3 cases per 100 000 persons), Northern Cape Province (1 285.2 cases per 100 000 persons) and KwaZulu-Natal Province (1 051.7 cases per 100 000 persons). The other provinces continued to report cumulative incidence risk below 1000 cases

# COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

WEEK 39 2020

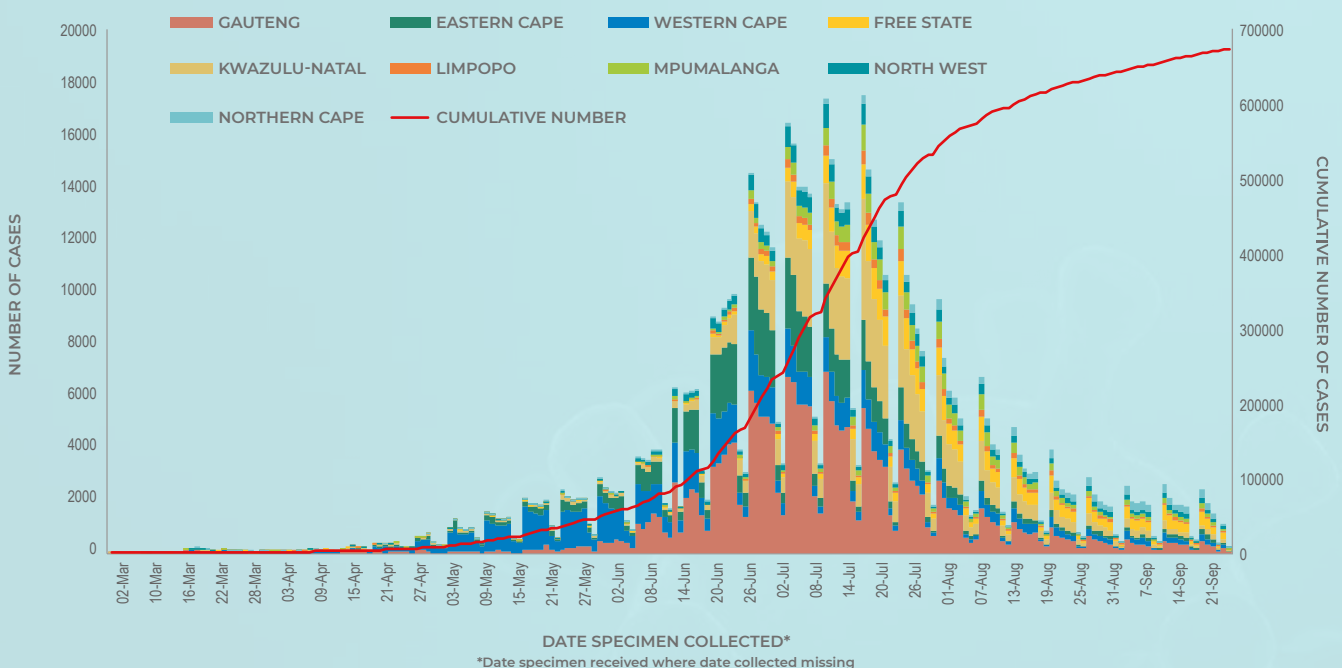
per 100 000 persons, with Limpopo Province reporting the lowest cumulative incidence risk (255.2 cases per 100 000), to date.

Similar to the past five weeks, in the past week, Northern Cape Province (71.1 cases per 100 000 persons) followed by Free State Province (57.3 cases per 100 000) and North West Province (19.2 cases per 100 000 persons) reported the highest weekly incidence risk. The weekly incidence risk in the rest of the provinces remained below 20 cases per 100 000 persons. In the past week, all provinces reported a decline in weekly incidence risk which varied in magnitude by province, reduction ranged from 50 cases per 100 000 persons (41% reduction) in Northern Cape Province to 1 case per 100 000 persons (9% reduction) in Limpopo Province, compared to week 38 (Figure 4). Since the peak of weekly incidence risk experienced at different levels and weeks by the different provinces, all the provinces are reporting a gradual decline in weekly incidence risk.

Among the five provinces reporting the majority of cases in South Africa to date, doubling time of number of cases varied with time, with Eastern Cape Province reporting the longest doubling time in week 38 (Figure 5). In week 38, the estimated doubling time of number

of cases decreased from 604.3 to 491.8 days in the Eastern Cape Province which has been reporting the longest doubling time in the past weeks compared to other provinces, and from 438.7 days to 431.0 days in Gauteng Province compared to week 37. The doubling time relatively remained the same (80.3 vs 80.6 days) in the Free State Province and continued to increase, in two of the five provinces; to 427.0 days in Western Cape Province, and 403.0 days in KwaZulu-Natal Province. The case-fatality ratio was 2.4% (16 398/670 766); an additional 445 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, 445 compared to 506. 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-26 September 2020 (n=670 766)



\*Date specimen received where date collected missing

# COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

WEEK 39 2020

**Figure 2.** Number and cumulative incidence risk of laboratory-confirmed cases of COVID-19 and testing per 100 000 persons by province, South Africa, 3 March-26 September 2020 (n=670 766)



**Table 1.** Number and cumulative incidence risk of laboratory-confirmed cases of COVID-19 and testing per 100 000 persons by province, South Africa, 3 March-26 September 2020 (n=670 766)

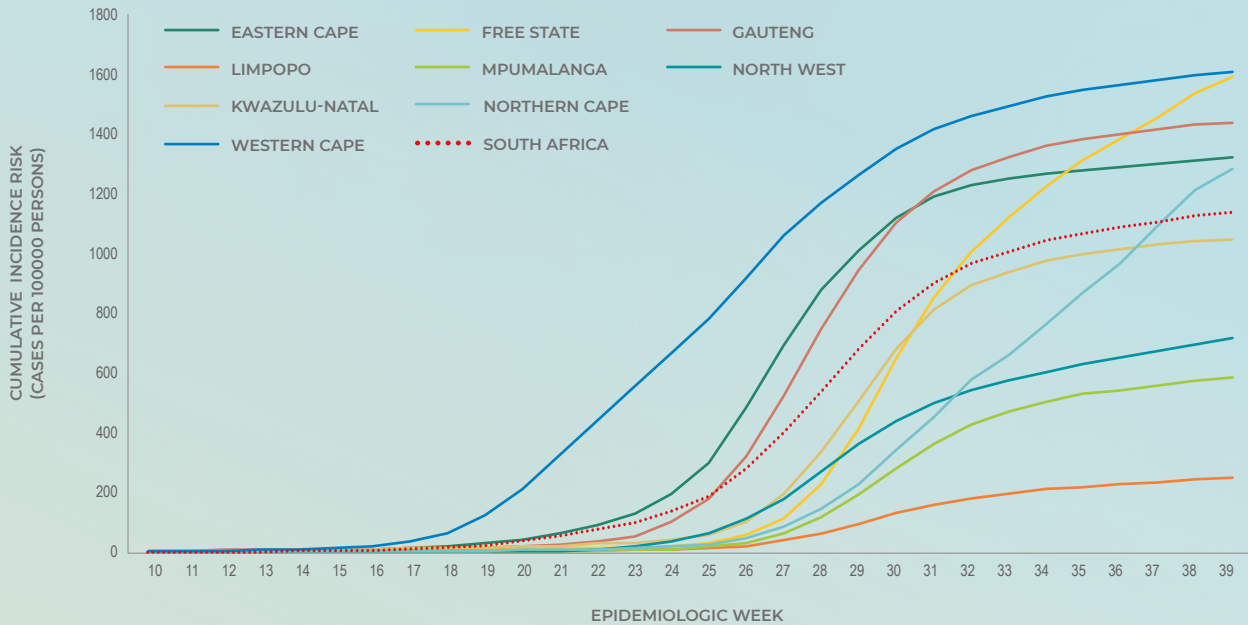
Province	Cumulative cases (n) (percentage, n/total cases in South Africa)	New cases <sup>1</sup> detected in week 39 (20-26 September 2020), n (percentage <sup>2</sup> , n/total) <sup>tab</sup>	Population in mid-2019 <sup>3</sup> , n	Cumulative incidence risk (cases per 100 000 persons)	Incidence risk of new cases detected in week 39 (cases/100 000 persons)	Tests <sup>4</sup> per 100 000 persons, 20-26 September 2020
Eastern Cape	88 892 (13.3)	618 (7.7)	6 712 276	1324.3	9.2	103.8
Free State	46 128 (6.9)	1 655 (20.6)	2 887 465	1597.5	57.3	241.4
Gauteng	219 039 (32.7)	1 448 (18.0)	15 176 115	1443.3	9.5	145.8
KwaZulu-Natal	118 731 (17.7)	809 (10.1)	11 289 086	1051.7	7.2	121.6
Limpopo	15 270 (2.3)	486 (6.0)	5 982 584	255.2	8.1	41.7
Mpumalanga	27 021 (4.0)	479 (6.0)	4 592 187	588.4	10.4	82.6
North West	29 012 (4.3)	773 (9.6)	4 027 160	720.4	19.2	91.1
Northern Cape	16 243 (2.4)	898 (11.2)	1 263 875	1285.2	71.1	307.0
Western Cape	110 430 (16.5)	872 (10.8)	6 844 272	1613.5	12.7	162.3
Unknown	0	0	0	-		
<b>Total</b>	<b>670 766</b>	<b>8 038</b>	<b>58 775 020</b>	<b>1141.2</b>	<b>13.7</b>	<b>127.3</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>2019 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

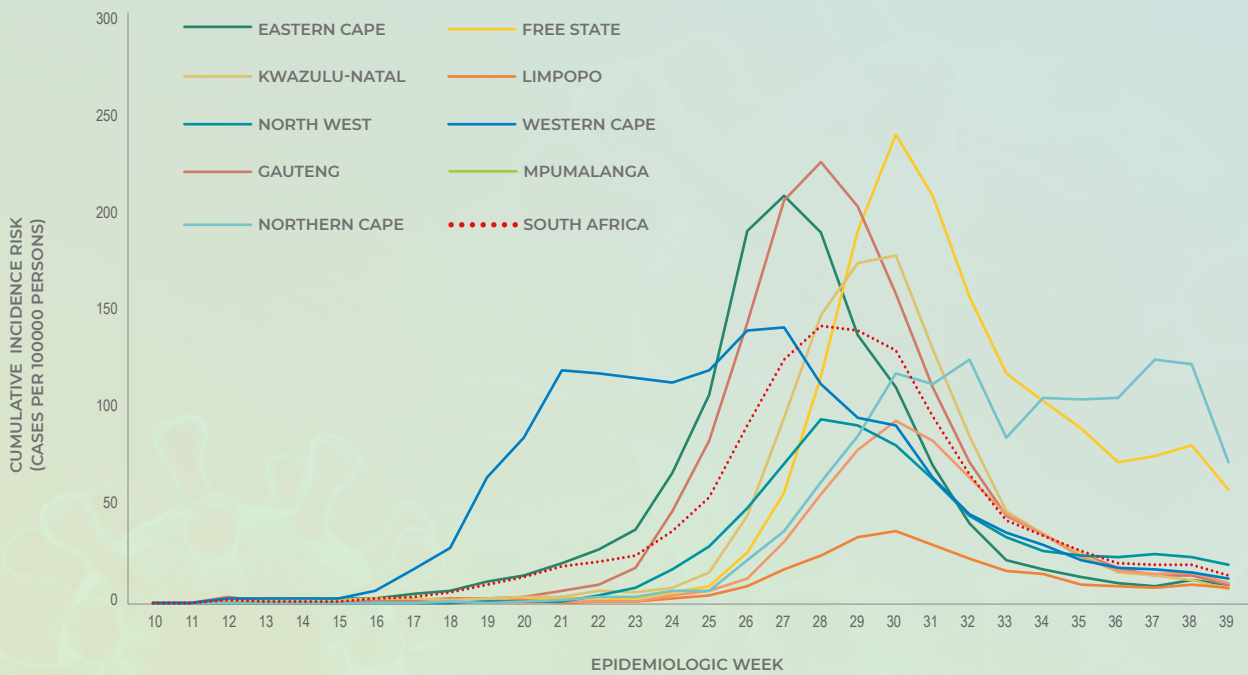
# COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

WEEK 39 2020

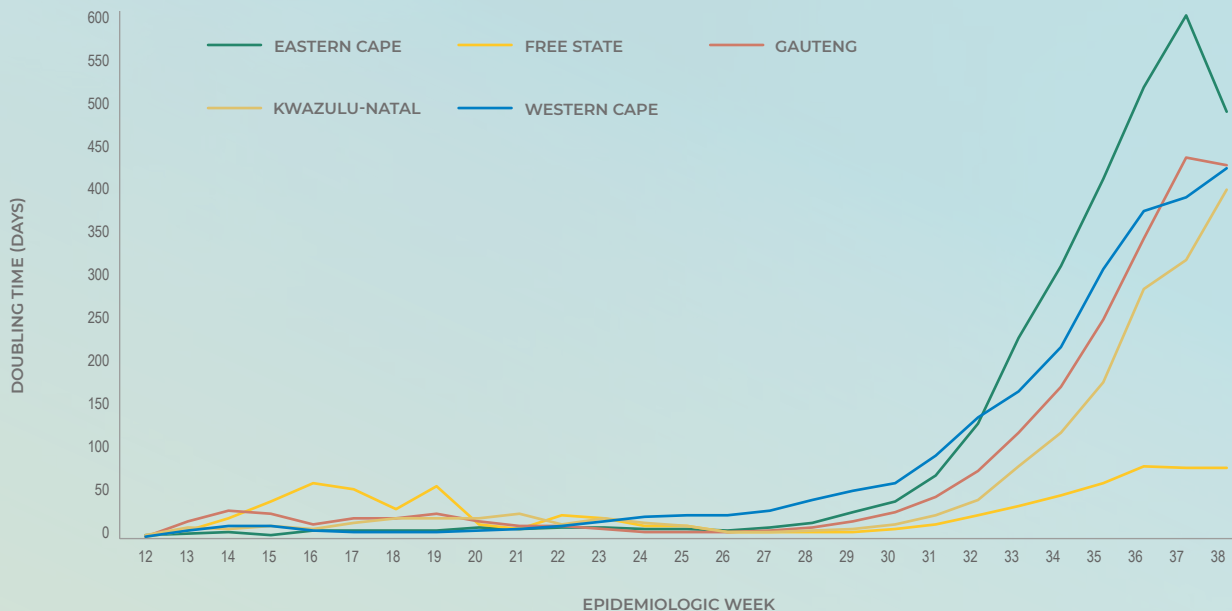
**Figure 3.** Cumulative incidence risk of PCR-confirmed cases of COVID-19 by province and epidemiologic week, South Africa, 3 March-26 September 2020 (n=670 766)



**Figure 4.** Weekly incidence risk of PCR-confirmed cases of COVID-19 by province and epidemiological week, South Africa, 3 March-26 September 2020 (n=670 766)



**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-19 September 2020 (n=583 220)



## 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 40 years with an interquartile range (IQR) of 30-52 years. The distribution of cases varied by age, with highest number of all cases to date in the 35-39-year (84 838/665 652, 12.7%) and 30-34-year (83 000/665 652, 12.5%) age group respectively (Figure 6). Similarly, among the cases reported in the past week, the highest number of cases was in the 35-39-year age group (908/7 954, 11.4%) followed by the 30-35-year age group (879/7 954, 11.1%). The median age for cases reported in week 39 was similar (39 years, IQR 28-52), to that of total cases (40 years). The highest cumulative incidence risk remained among cases aged 50-54 years (2 347.8 cases per 100 000 persons), followed by 45-49 years (2 219.5 cases per 100 000 persons) and the lowest cumulative incidence risk was reported in the younger age-groups, 137.4 cases per 100 000 persons and 162.4 cases per 100 000 persons in the 0-4- and 5-9-year age groups respectively (Figure 7 and Table 2). Unlike the trend in the past few weeks where the highest weekly incidence risk was reported among cases aged  $\geq 80$  years, among cases detected in week 39, the highest weekly incidence risk was in cases aged 50-54-years (25.5 cases per 100 000 persons), followed by cases in the 45-49 year age group (24.2 cases per 100 000 persons) and the lowest weekly incidence risk

was in the 0-4-year age group (2.0 cases per 100 000 persons).

To date, the majority of COVID-19 cases reported were female (58.3%, 387 618/664 979). This trend continued in the past week where 57.6% (4 548/7 899) of cases were female. The cumulative incidence risk has remained consistently higher among females (1 278.7 cases per 100 000 persons) than among males (960.8 cases per 100 000 persons) (Figure 7). However, this varied by age group with the peak cumulative incidence risk among females aged 45-49 years (2 430.0 cases per 100 000 persons) and males aged 50-54 years (2 226.7 cases per 100 000 persons) (Figure 8 and Figure 9). In week 39, the highest incidence risk for males was in the  $\geq 80$ -year age group (30.7 cases per 100 000 persons) and females in the 45-49-year age group (25.9 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.

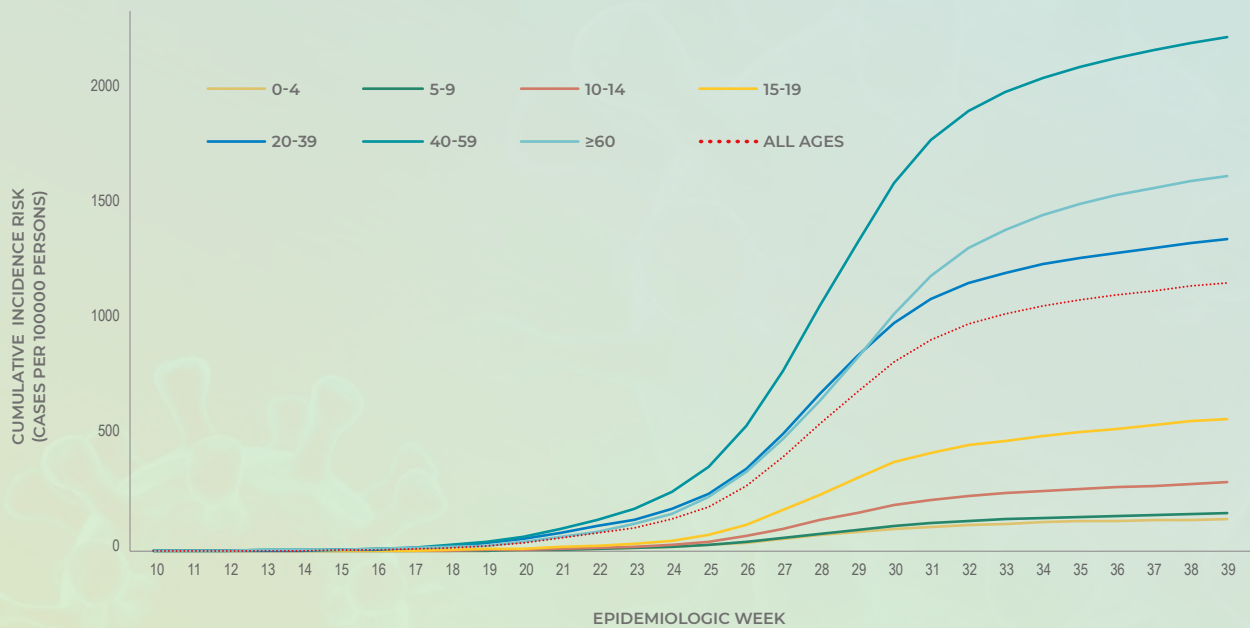
# COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

WEEK 39 2020

**Figure 6.** Number of laboratory-confirmed cases of COVID-19 by age group and sex, South Africa, 3 March-26 September 2020 (n=664 979, sex/age missing for 5 787)



**Figure 7.** Cumulative incidence risk of PCR-confirmed cases of COVID-19 by age group in years and epidemiologic week, South Africa, 3 March-26 September 2020 (n=665 652, 5 114 missing age group)

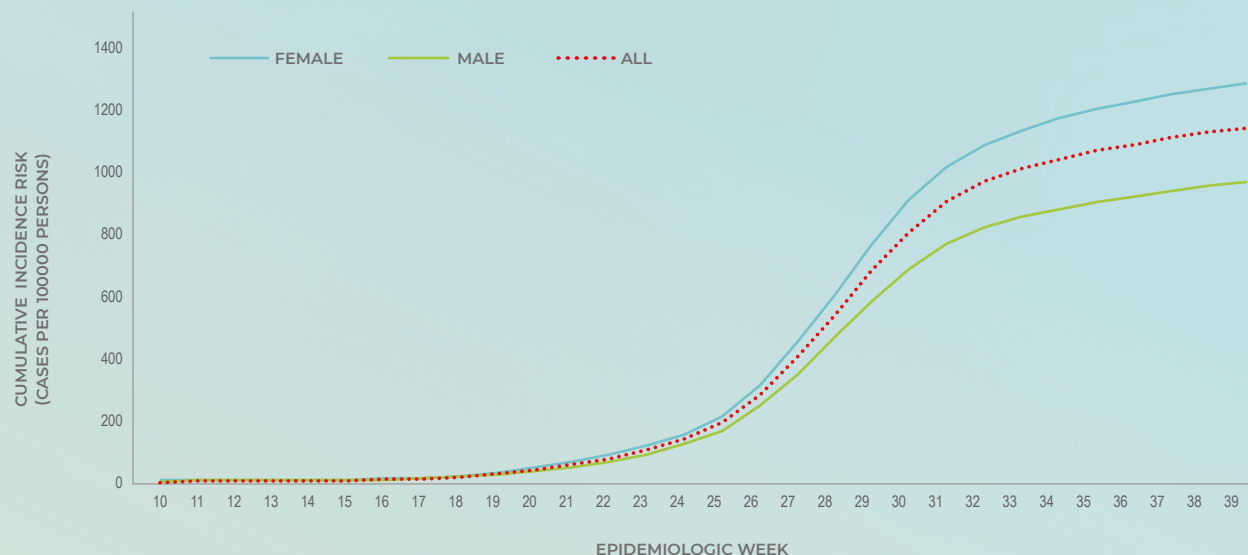




# COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

WEEK 39 2020

**Figure 8.** Cumulative incidence risk by sex and epidemiological week, South Africa, 3 March-26 September 2020 (n=664 979 sex missing for 5 787)

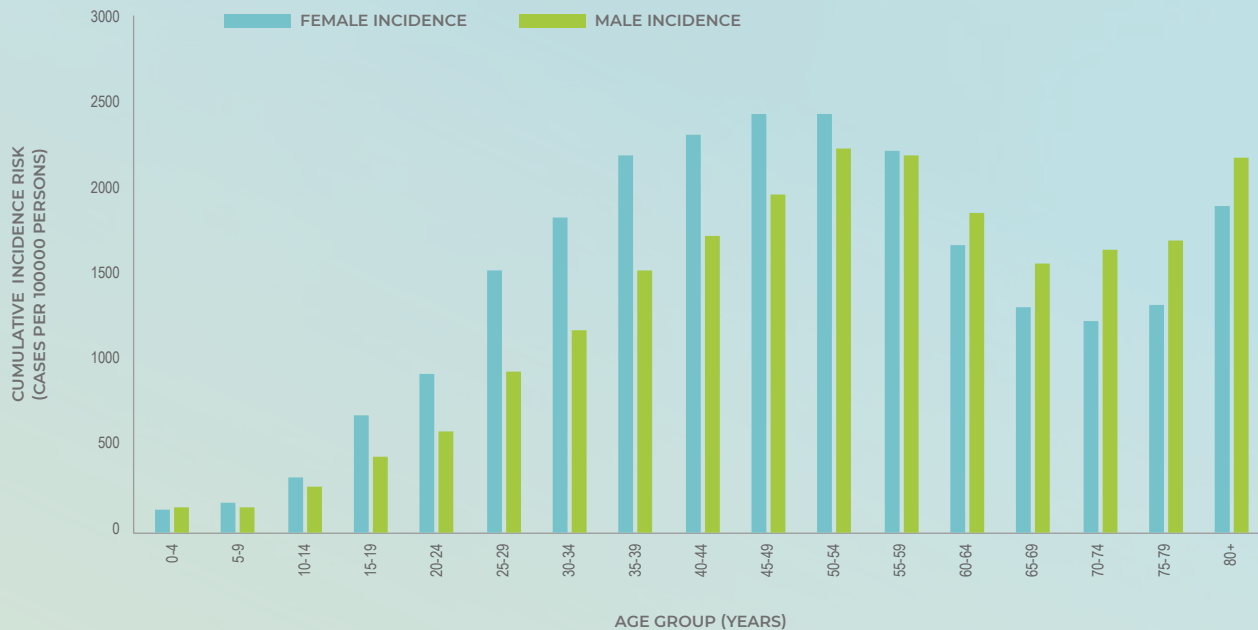


**Table 2.** Number of cases and cumulative/weekly incidence risk by age group, South Africa, 3 March-26 September 2020, n= 670 766

Age group (years)	Cumulative cases (n) (percentage, n/total cases in South Africa)	New cases <sup>1</sup> detected in week 39 (20-26 September 2020), n (percentage <sup>2</sup> , n/total)	Population in mid-2019 <sup>3</sup> , n	Cumulative incidence risk (cases per 100 000 persons)	Incidence risk of new cases detected in week 39 (cases/100 000 persons)
0-4	7 880 (1.2)	117 (1.5)	5733 946	137.4	2.0
5-9	9 316 (1.4)	173 (2.2)	5737 439	162.4	3.0
10-14	15 978 (2.4)	304 (3.8)	5427 902	294.4	5.6
15-19	26 304 (4.0)	471 (5.9)	4660 002	564.5	10.1
20-24	37 071 (5.6)	480 (6.0)	4914 186	754.4	9.8
25-29	68 031 (10.2)	806 (10.1)	5528 571	1 230.5	14.6
30-34	83 000 (12.5)	879 (11.1)	5537 963	1 498.7	15.9
35-39	84 838 (12.7)	908 (11.4)	4571 175	1 855.9	19.9
40-44	72 694 (10.9)	767 (9.6)	3585 408	2 027.5	21.4
45-49	67 596 (10.2)	738 (9.3)	3045 617	2 219.5	24.2
50-54	59 518 (8.9)	647 (8.1)	2535 048	2 347.8	25.5
55-59	48 612 (7.3)	514 (6.5)	2192 512	2 217.2	23.4
60-64	31 394 (4.7)	359 (4.5)	1784 476	1 759.3	20.1
65-69	19 429 (2.9)	298 (3.7)	1370 121	1 418.0	21.7
70-74	13 258 (2.0)	212 (2.7)	949 812	1 395.9	22.3
75-79	8 708 (1.3)	137 (1.7)	597 874	1 456.5	22.9
≥80	12 025 (1.8)	144 (1.8)	602 969	1 994.3	23.9
Unknown	5 114	84			
<b>Total</b>	<b>670 766</b>	<b>8 038</b>	<b>58 775 021</b>	<b>1 141.2</b>	<b>13.7</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>2019 Mid-year population Statistics South Africa

**Figure 9.** Cumulative incidence risk by age group and sex, South Africa, 3 March-26 September 2020 (n= 664 979, sex/age missing for 5 787)



## 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. To date, 670 766 cases, including 16 398 deaths have been reported. Similar to the trend in the previous weeks, the weekly incidence risk of cases per 100 000 persons continued to decrease compared to the preceding week. The sustained decline in number of cases and weekly incidence risk together with prolonged doubling time of number of cases reported from the five provinces which contribute the majority of cases may reflect a true slowing down of transmission in these provinces. In addition, changes in testing practices and/or access to testing could also contribute to changes in numbers of confirmed cases.