

# COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

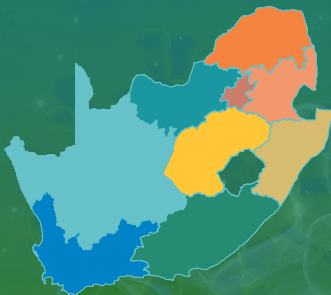


NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

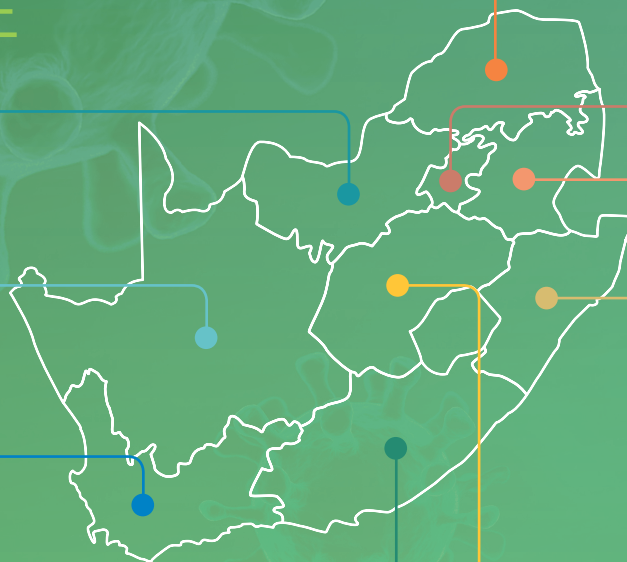
Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 33 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 15 August 2020 (week 33 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 15 August 2020, a total of 587 345 laboratory-confirmed COVID-19 cases had been detected in South Africa. Of these, 27 487 were cases reported since the last report. The number of new cases detected in week 33 (20 699), was lower than the number of new cases detected in week 32 (32 714).
- An additional 1431 deaths were reported since the last report. The overall case-fatality ratio was 2.0% (11 839/587 345).
- Similar to the previous week, Gauteng Province reported the highest percentage of new cases (7 725/20 699, 27.7 %), followed by KwaZulu-Natal Province (4 410/ 20 699, 21.3%), and Free State Province (2 756/20 699, 13.2%).
- All provinces reported a decline in weekly incidence risk which varied in magnitude by province, Gauteng reported the largest decline (95 vs 64 cases per 100 000 persons) followed by Free State (154 vs 129 cases per 100 000 persons).
- In week 32, the estimated doubling time of number of cases of the five provinces reporting the majority of cases continued to increase, increased to 139.9 days in Western Cape Province, 131.8 days in Eastern Cape Province, 77.2 days in Gauteng Province, 43.8 days in KwaZulu-Natal Province and to 25.8 days in Free State Province.
- In the past week, Free State Province reported the highest weekly incidence risk (128.6 cases per 100 000 persons) followed by Gauteng Province (64.0 cases per 100 000 persons).
- The age and sex distribution of cases remained the same compared to previous weeks with a majority of females (58.2%, 339 254/ 582 868) and the highest percentage in the 35-39-year age group (12.9% ,75 506/582 868), followed closely by the 30-34-year age group (12.6%, 73 791/582 868).
- The cumulative incidence risk has remained consistently higher among females (1127.0 cases per 100 000 persons) than among males (849.7 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. 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 15 August 2020, a total of 587 345 laboratory-confirmed COVID-19 cases were reported in South Africa. This is 27 487 more cases than the number reported in the last report. The number of new cases detected in week 33 (20 699) was lower than the number of new cases detected in week 32 (32 714). In the past week, Gauteng Province reported the highest percentage of new cases (7 725/20 699, 27.7%), followed by KwaZulu-Natal Province (4 410/20 699; 21.3%), and Free State Province (2 756/20 699, 13.2%) (Table 1). Five provinces, Gauteng Province (199 635/587 294, 34.0%), followed by KwaZulu-Natal (105 383/587 294, 17.9%), Western Cape (102 449/587 294, 17.4%), Eastern Cape (84 006/587 294, 14.3%) and Free State (31 869/587 294, 5.4%) provinces continued to contribute the majority (523 342/587 294, 89.1%) of total COVID-19 cases in South Africa. The rest of the provinces reported less than 5% each. The province with the greatest increase in percentage contribution since week 32 was Western Cape Province (2.7%), followed by Free State (1.6%) and North West (1.2%), while the percent contribution increased by <1% for Limpopo and Mpumalanga provinces. The province with highest decrease in percentage contribution from week 32 was KwaZulu-Natal, decreased by 3.7%, whereas Gauteng, Eastern Cape and Northern Cape provinces decreased by <1% each, from week 32. In keeping with previous weeks, the Western Cape Province had the highest cumulative incidence risk (1496.9 cases per 100 000 persons); with Gauteng Province (1315.5 cases per 100 000 persons) and the Eastern Cape Province (1251.5 cases per 100

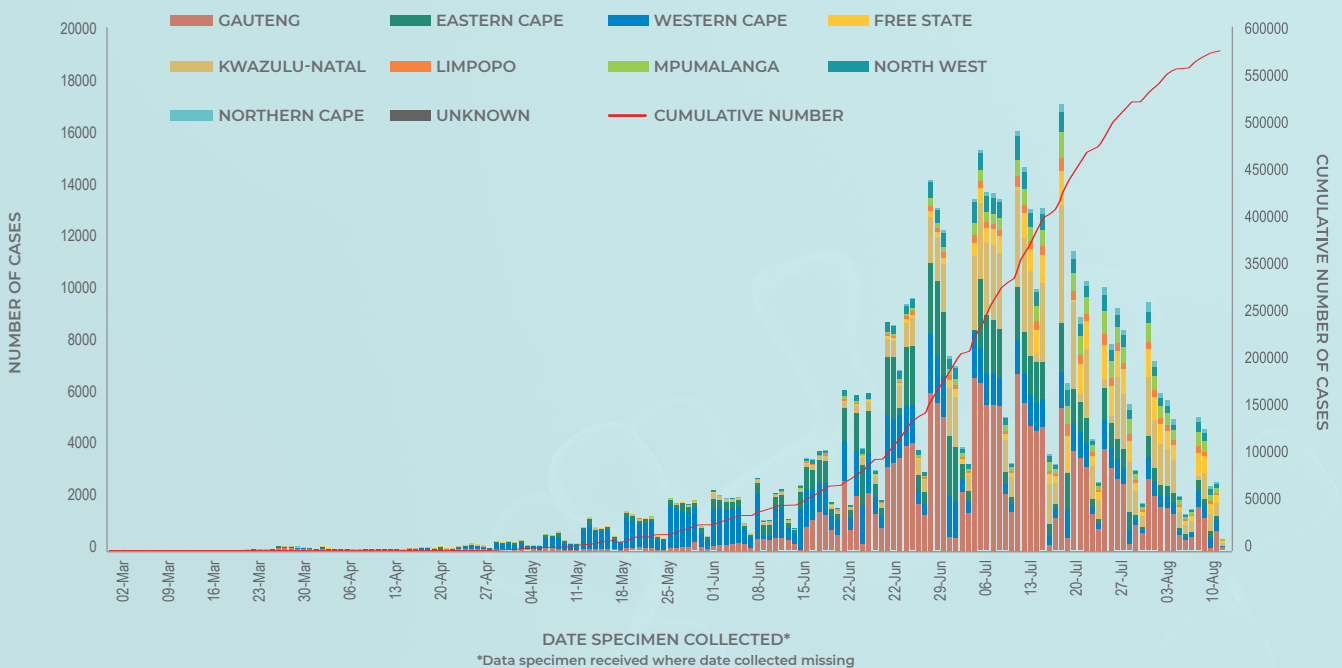
# COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

WEEK 33 2020

000 persons) with the second and third highest cumulative incidence risk, respectively. The Limpopo Province remains the province with the lowest cumulative incidence risk (193.4 cases per 100 000 persons) reported to date. The cumulative incidence risk for the country increased from 963.6 cases per 100 000 persons in week 32 to 999.7 cases per 100 000 persons in week 33. The cumulative incidence risk varied by province over time (Figure 3). This is partly explained by testing differences by province (Table 1). In the past week, Free State Province continued to report the highest weekly incidence risk (95.4 cases per 100 000 persons) followed by Northern Cape Province (52.0 cases per 100 000 persons) and KwaZulu-Natal Province (39.1 cases per 100 000 persons). All the provinces reported a decline in weekly incidence risk in the past week as compared to week 32, the decrease in weekly incidence risk varied in magnitude, with Northern Cape Province reporting the largest decline (52.0 vs 115.6 cases per 100 000) followed by Free State Province (95.4 vs 154.4 cases per 100 000 persons). (Figure 4). Among the five provinces reporting the majority of cases in South

Africa to date, doubling time of number of cases varied with time (Figure 5). In week 32, the estimated doubling time of number of cases continued to increase for all five provinces to 139.9 days in Western Cape Province, 131.8 days in Eastern Cape Province, 77.2 days in Gauteng Province, 43.8 days in KwaZulu-Natal Province and 25.8 days in Free State Province. To date, the case-fatality ratio remained  $\leq 2\%$  (11 839/587 345, 2%); an additional 1 431 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, 1 431 compared to 2 042. 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.

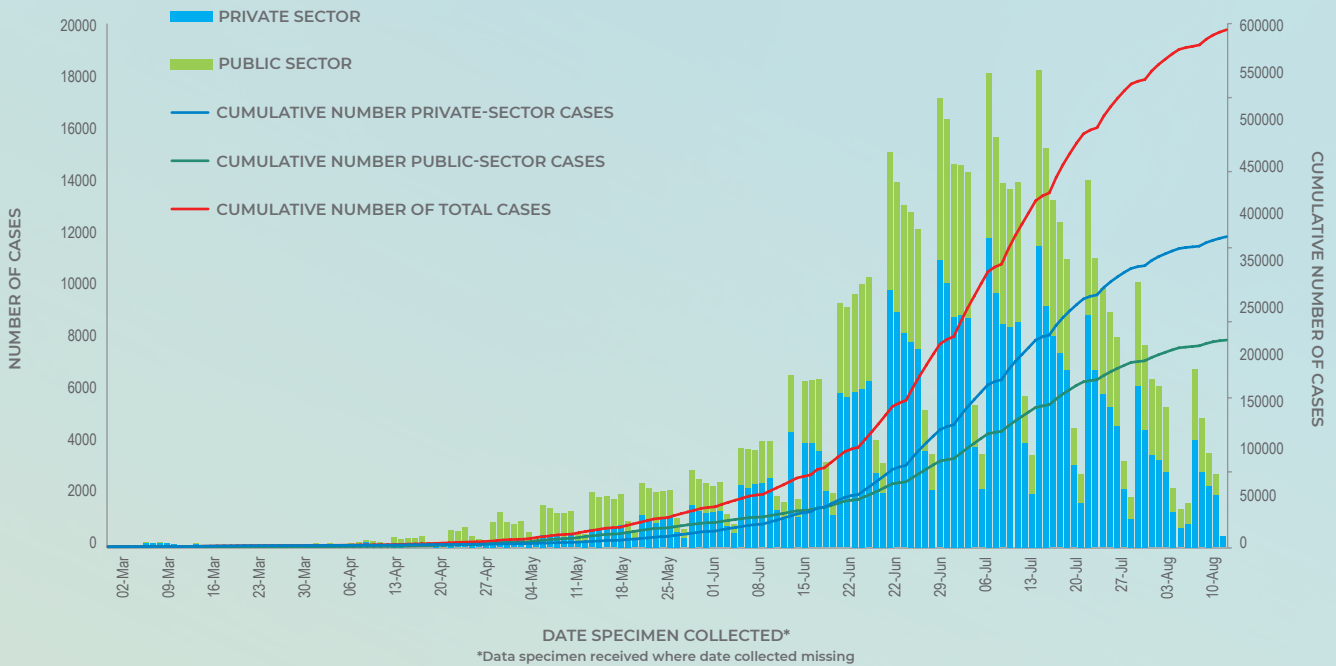
**Figure 1.** Number and cumulative number of laboratory-confirmed cases of COVID-19 by province and date of specimen collection, South Africa, 3 March-15 August 2020 (n=586 770, 575 missing dates of specimen collection/province allocation).



# COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

WEEK 33 2020

**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-15 August 2020 (n=587 789, 556 missing dates of specimen collection/sector allocation)



**Table 1.** Number and cumulative incidence risk of laboratory-confirmed cases of COVID-19 and testing per 100 000 persons by province, South Africa, 9 March-15 August 2020 (n=5587 345)

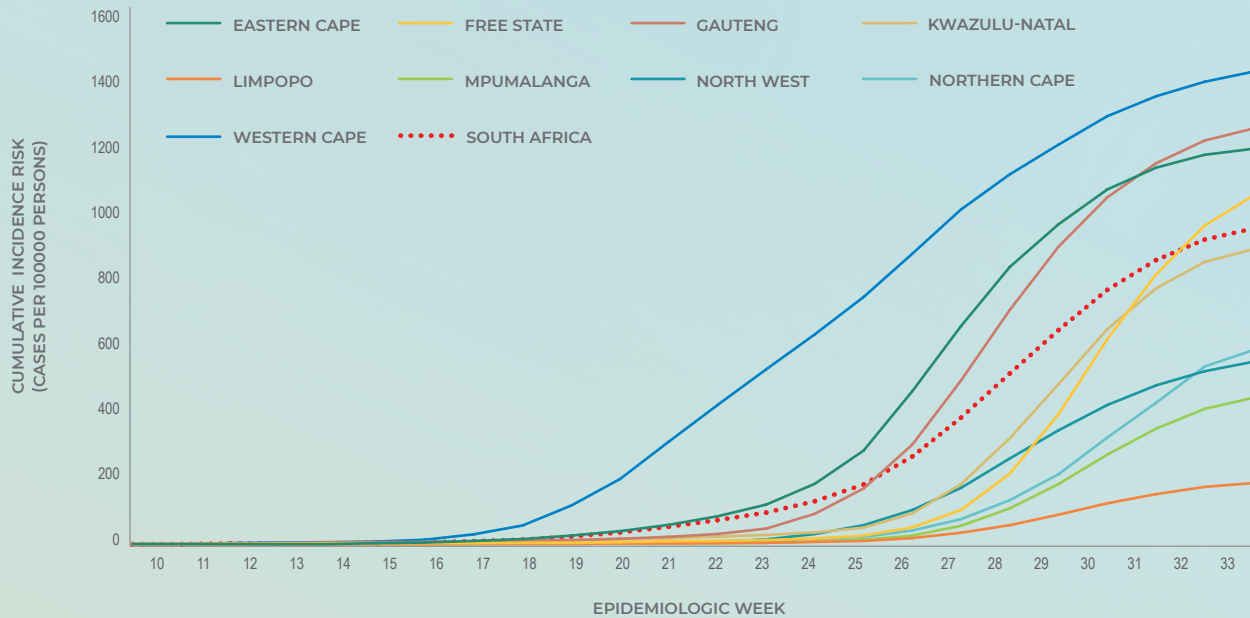
| Province               | Cumulative cases (n) (percentage, n/ total cases in South Africa) | New cases <sup>1</sup> detected in week 33 (9 August-15 August 2020), n (percentage <sup>2</sup> , n/total) | Population in mid-2019 <sup>3</sup> , n | Cumulative incidence risk (cases per 100 000 persons) | Incidence risk of new cases detected in week 33 (cases/100 000 persons) | Tests <sup>4</sup> per 100 000 persons, 9 August-15 August 2020 |
|------------------------|---|---|---|---|---|---|
| Eastern Cape           | 84 006 (14.3)   | 1 306 (6.3)   | 6 712 276                               | 1251.5  | 19.5  | 111.3   |
| Free State             | 31 869 (5.4)  | 2 756 (13.3)  | 2 887 465                               | 1103.7  | 95.4  | 350.3   |
| Gauteng                | 199 635 (34.0)  | 5 725 (27.7)  | 15 176 115                              | 1315.5  | 37.7  | 215.2   |
| KwaZulu-Natal          | 105 383 (17.9)  | 4 410 (21.3)  | 11 289 086                              | 933.5   | 39.1  | 212.9   |
| Limpopo                | 11 573 (2.0)  | 737 (3.6)   | 5 982 584                               | 193.4   | 12.3  | 67.5  |
| Mpumalanga             | 21 289 (3.6)  | 1 646 (8.0)   | 4 592 187                               | 463.6   | 35.8  | 151.4   |
| North West             | 23 250 (4.0)  | 1 225 (5.9)   | 4 027 160                               | 577.3   | 30.4  | 98.7  |
| Northern Cape          | 7 840 (1.3)   | 657 (3.2)   | 1 263 875                               | 620.3   | 52.0  | 241.8   |
| Western Cape           | 102 449 (17.4)  | 2 237 (10.8)  | 6 844 272                               | 1496.9  | 32.7  | 216.7   |
| Province not allocated | 51  | 0   | 0                                       | 0   | 0   |   |
| <b>Total</b>           | <b>587 345</b>  | <b>20 699</b>   | <b>58 750 2200</b>                      | <b>999.7</b>  | <b>352.3</b>  | <b>182.4</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

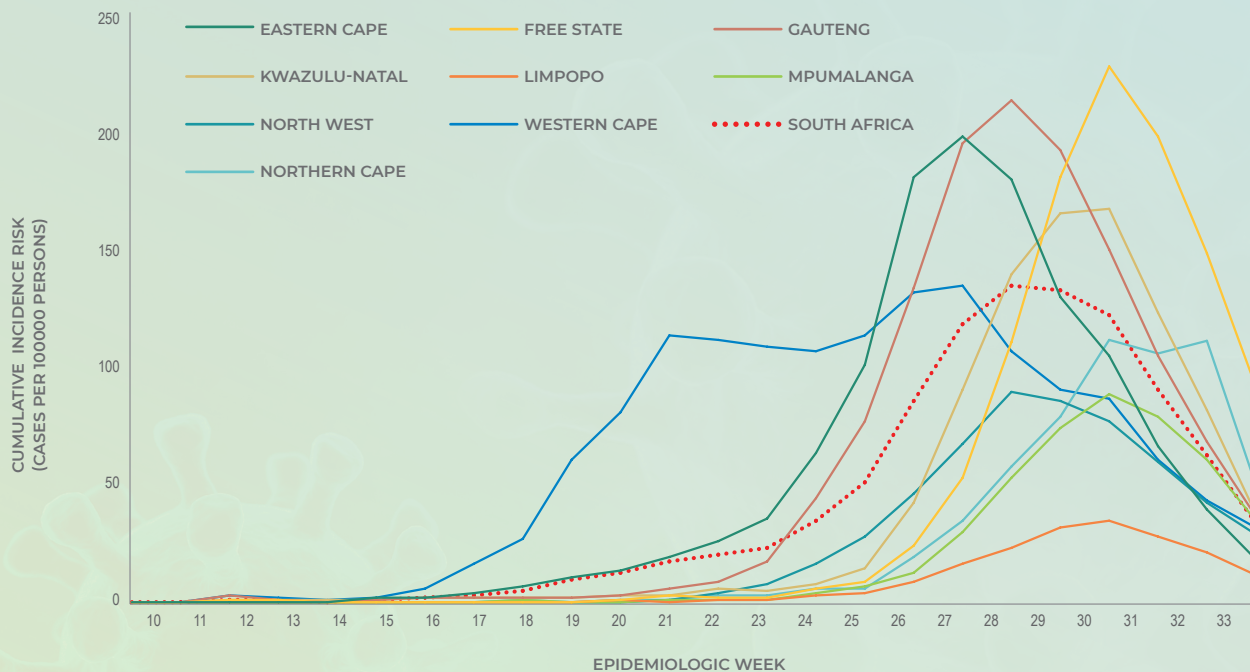
# COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

WEEK 33 2020

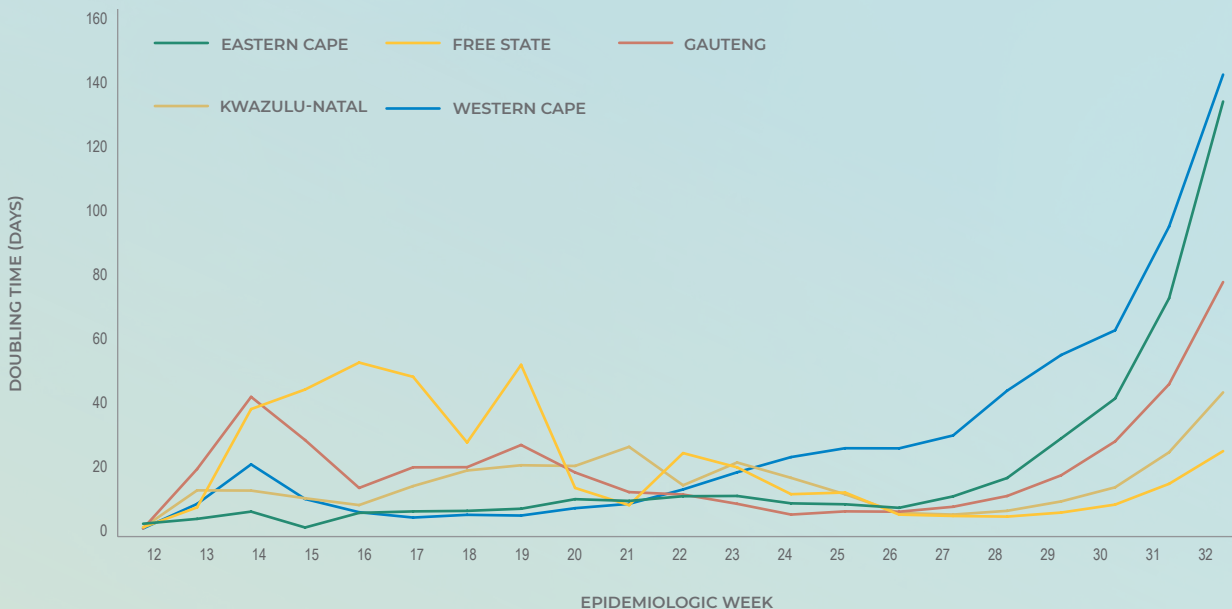
**Figure 3.** Cumulative incidence risk of PCR-confirmed cases of COVID-19 by province and epidemiological week, South Africa, 3 March-15 August 2020 (n=586 770, 575 missing dates of specimen collection/province allocation)



**Figure 4.** Weekly incidence risk of PCR-confirmed cases of COVID-19 by province and epidemiological week, South Africa, 3 March-15 August 2020 (n=586 770, 575 missing dates of specimen collection/province allocation)



**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-8 August 2020 (n=523 342)



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

The median age of COVID-19 cases in South Africa to date was 40 years with an interquartile range (IQR) of 30-51 years. The distribution of cases varied by age, with highest percentage of all cases to date in the 35-39-year age group (75 506/582 868, 12.9%) followed closely by the 30-34-year age group (73 791/582 868, 12.6%) (Figure 6).

Similarly, among the cases reported in the past week, the highest percentage of cases was in the 35-39-year age group (2 442/20 699, 11.8%) followed by the 30-34-year age group (2 232/20 699, 10.8%). Similar to the previous two weeks, the median age for cases reported in week 33 was slightly older (42 years, IQR 31-55), than that of total cases (40 years).

As in previous weeks, the highest cumulative incidence risk was reported among cases aged  $\geq 80$  years (2368.9 cases per 100 000 persons), followed by those in the 50-54-year age group (2077.1 cases per 100 000 persons). The lowest cumulative incidence risk was reported in the younger age-groups, 117.3 cases per 100 000 persons and 136.4 cases per 100 000 persons in the 0-4- and 5-9-year age groups respectively (Figure 7 and Table 2).

Among cases detected in week 33, the highest weekly incidence risk was among cases aged  $\geq 80$ -years (118.9 cases per 100 000 persons) and the lowest incidence risk was in the 0-4-year age group (3.9 cases per 100 000 persons).

To date, the majority of COVID-19 cases reported were female (58.2%, 339 254/582 868). This was similar to the percentage reported in the past week (58.5%, 12 007/20 526). The cumulative incidence risk has remained consistently higher among females (1 127.0 cases per 100 000 persons) than among males (849.7 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 and males aged  $\geq 80$  years (Figure 8 and Figure 9).

The highest weekly incidence in week 33 was among females (39.9 cases per 100 000 cases vs. 29.7 cases per 100 000 persons) in men. This may be partly explained by varying testing practices by age and sex (data not shown) and by health seeking behaviour.

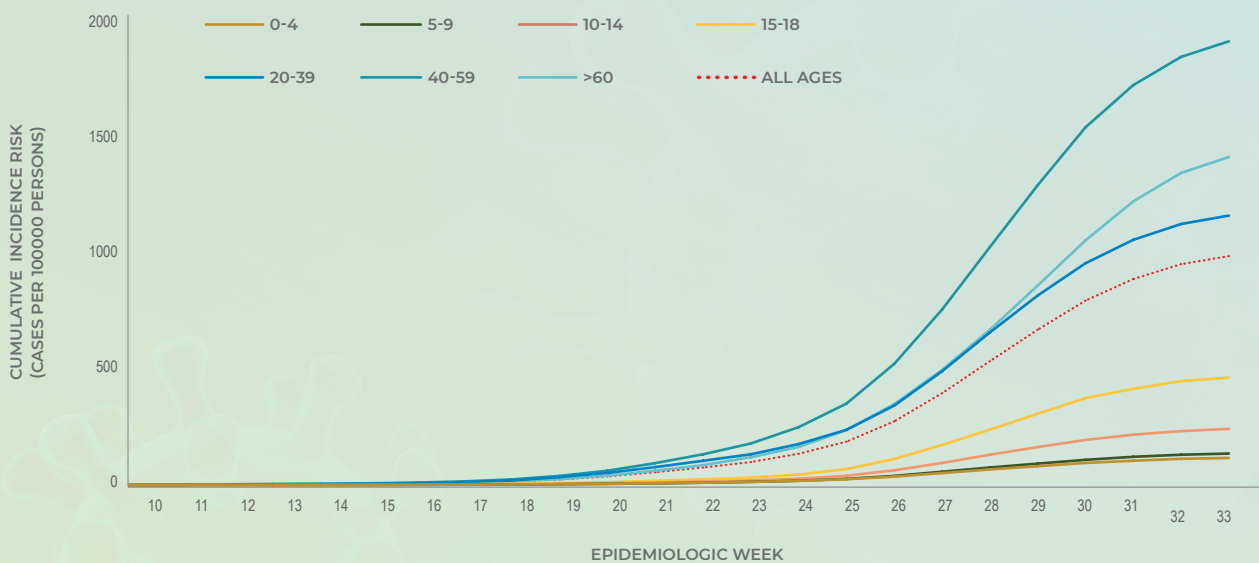
# COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

WEEK 33 2020

**Figure 6.** Number of laboratory-confirmed cases of COVID-19 by age group and sex, South Africa, 3 March-15 August 2020 (n= 582 868, sex/age missing for 4477)



**Figure 7.** Cumulative incidence risk of PCR-confirmed cases of COVID-19 by age group in years and epidemiologic week, South Africa, 3 March-15 August 2020 (n=586 820, 525 missing dates of specimen collection)

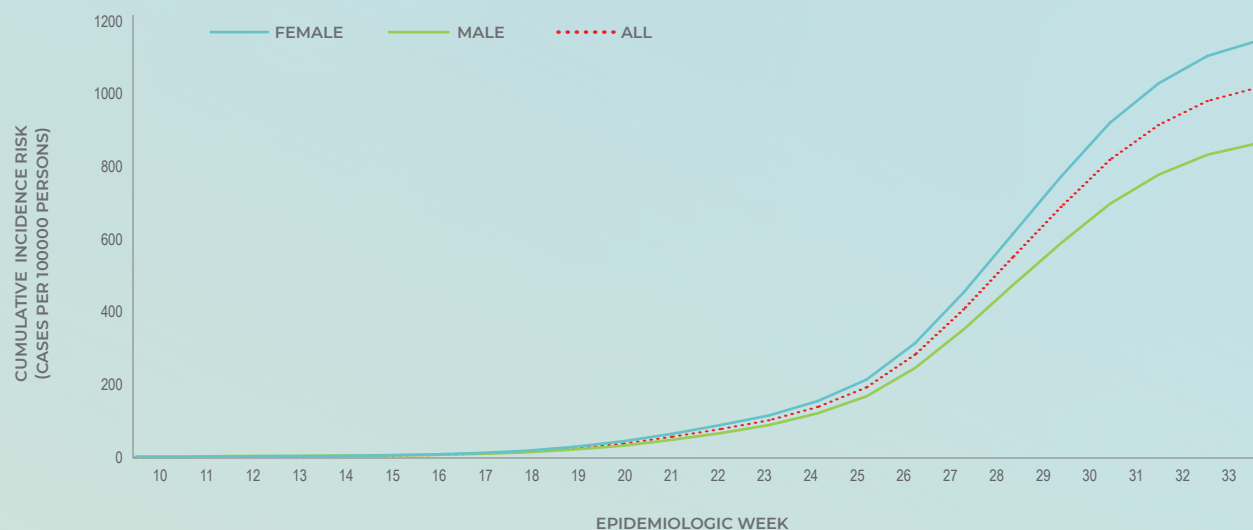




# COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

WEEK 33 2020

**Figure 8.** Cumulative incidence risk by sex and epidemiological week, South Africa, 3 March-15 August 2020 (n=582 431, sex/ specimen collection date missing for 4914)

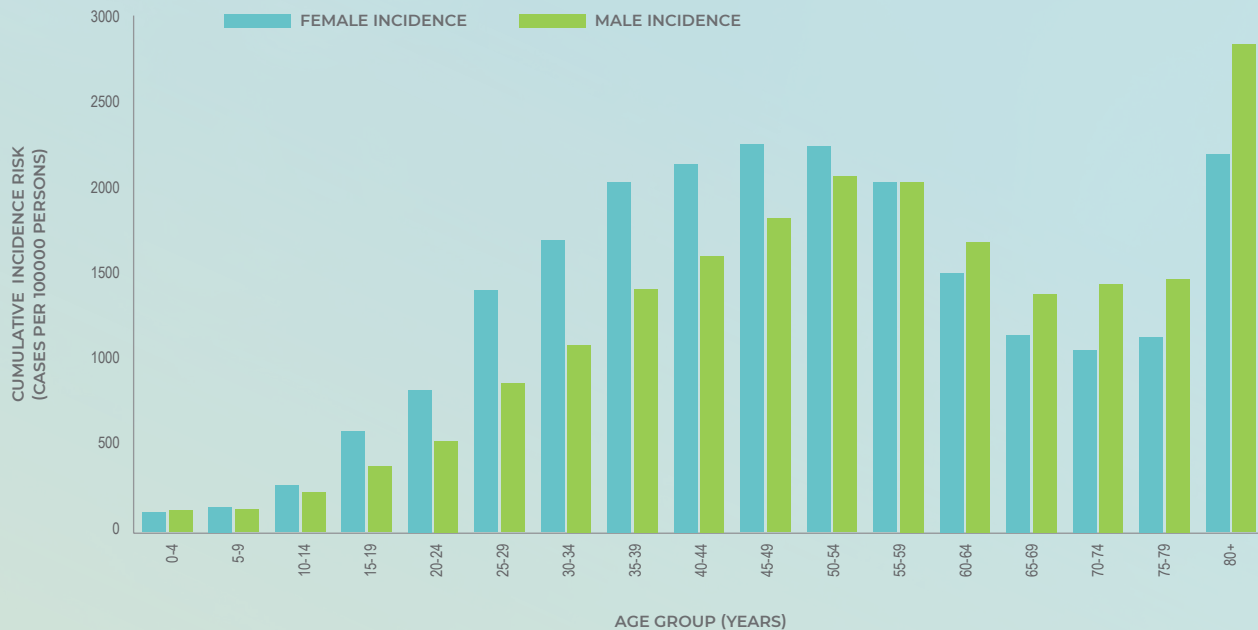


**Table 2.** Number of cases and cumulative/weekly incidence risk by age group, South Africa, 3 March-15 August 2020, n= 587 345

| Age group (years) | Cumulative cases (n) (percentage, n/ total cases in South Africa) | New cases <sup>1</sup> detected in week 32 (9 August-15 August 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 33 (cases/100 000 persons) |
|-------------------|---|---|---|---|---|
| 0-4               | 6 726 (1.1)   | 221 (1.1)   | 5 733 946                               | 117.3   | 3.9   |
| 5-9               | 7 824 (1.3)   | 293 (1.4)   | 5 737 439                               | 136.4   | 5.1   |
| 10-14             | 13 253 (2.3)  | 528 (2.6)   | 5 427 902                               | 244.2   | 9.7   |
| 15-19             | 21 796 (3.7)  | 705 (3.4)   | 4 660 002                               | 467.7   | 15.1  |
| 20-24             | 32 158 (5.5)  | 1 085 (5.2)   | 4 914 186                               | 654.4   | 22.1  |
| 25-29             | 60 212 (10.3)   | 1 793 (8.7)   | 5 528 571                               | 1 089.1   | 32.4  |
| 30-34             | 73 791 (12.6)   | 2 232 (10.8)  | 5 537 963                               | 1 332.5   | 40.3  |
| 35-39             | 75 506 (12.9)   | 2 442 (11.8)  | 4 571 175                               | 1 651.8   | 53.4  |
| 40-44             | 64 632 (11.0)   | 2 117 (10.2)  | 3 585 408                               | 1 802.6   | 59.0  |
| 45-49             | 59 882 (10.2)   | 2 068 (10.0)  | 3 045 617                               | 1 966.2   | 67.9  |
| 50-54             | 52 656 (9.2)  | 1 936 (9.4)   | 2 535 048                               | 2 077.1   | 76.4  |
| 55-59             | 42 860 (7.3)  | 1 601 (7.7)   | 2 192 512                               | 1 954.8   | 73.0  |
| 60-64             | 27 171 (4.6)  | 1 231 (5.9)   | 1 784 476                               | 1 522.6   | 69.0  |
| 65-69             | 16 360 (2.8)  | 794 (3.8)   | 1 370 121                               | 1 194.1   | 58.0  |
| 70-74             | 11 014 (1.9)  | 560 (2.7)   | 949 812                                 | 1 159.6   | 59.0  |
| 75-79             | 7 220 (1.2)   | 376 (1.8)   | 597 874                                 | 1 207.6   | 62.9  |
| ≥80               | 14 284 (2.4)  | 717 (3.5)   | 602 969                                 | 2 368.9   | 118.9   |
| <b>Total</b>      | <b>587 345</b>  | <b>20 699</b>   | <b>58 775 021</b>                       | <b>999.3</b>  | <b>35.2</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- 15 August 2020 (n= 582 868, gender missing for 4477 cases).



## 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 laboratory-confirmed cases of COVID-19 in South Africa continue to increase, even though the numbers detected per week are lower compared to numbers reported in earlier weeks. To date, 587 345 cases, including 11 839 deaths have been reported. In the past week (week 33), the incidence risk of cases per 100 000 persons for all provinces was lower than that reported for week 32.

The proportional contribution of four of the five provinces which contribute a majority of cases (Gauteng, Eastern Cape, Western Cape and KwaZulu-Natal) continued to decrease compared to previous weeks. The 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.