

COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

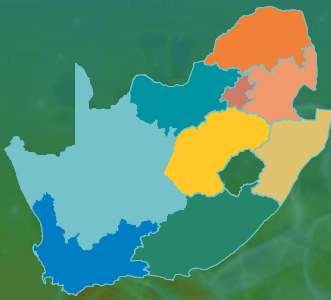


NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 35 2020

CUMULATIVE DATA FROM



CASES

625 056
IN TOTAL

12 639
THIS WEEK

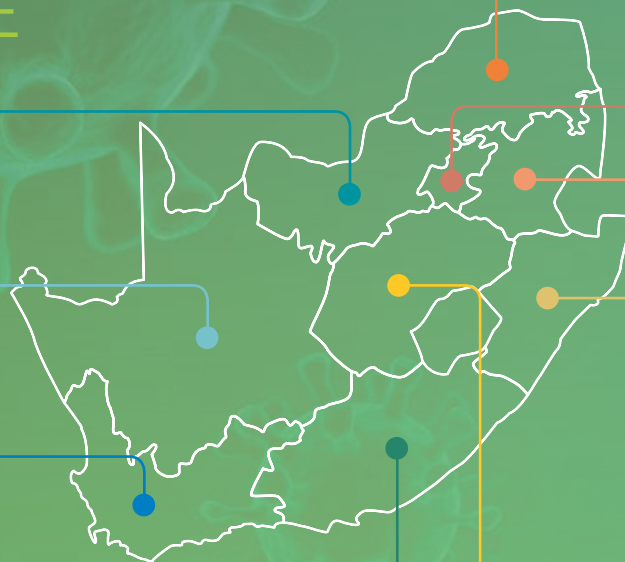


PERSONS

1 063.9
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 29 August 2020 (week 35 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 29 August 2020, a total of 625 056 laboratory-confirmed COVID-19 cases had been detected in South Africa. Of these, 15 203 were cases reported since the last report. The number of new cases detected in week 35 (12 639) was lower than the number of new cases detected in week 34 (20 121)
- An additional 969 deaths were reported since the last report. The overall case-fatality ratio was 2.2% (14 028/625 056).
- In the past week, Gauteng Province reported the highest percentage of new cases (3 101/12 639, 24.5%), followed by KwaZulu-Natal Province (2 295/ 12 639, 18.2%), and Free State Province (2 132/12 639, 16.9%).
- Western Cape Province had the highest cumulative incidence risk (1 547.4 cases per 100 000 persons) followed by Gauteng Province (1381.5 cases per 100 000 persons). Free State Province (1 300.7 cases per 100 000 persons) replaced Eastern Cape (1282.1 cases per 100 000 persons) as the province with the 3rd highest cumulative incidence risk.
- In the past week all the provinces reported a decline in weekly incidence risk from the previous week which varied in magnitude by province, Free State Province and Northern Cape reported the highest reduction as compared to week 34 (73.8 vs 102.2 cases per 100 000 and 73.8 vs 102.1 cases per 100 000 respectively).
- In week 34, the estimated doubling time of number of cases continued to increase for all five provinces, increased to 220.1 days in Western Cape Province, 314.2 days in Eastern Cape Province, 172.7 days in Gauteng Province, 120.7 days in KwaZulu-Natal Province and 49.4 days in Free State Province.
- The distribution of cases varied by age, with highest percentage of all cases to date in the 35-39-year age group (79 722/ 620 329, 12.9%) followed closely by the 30-34-year age group (77 854/620 329, 12.6%).
- To date, the majority of COVID-19 cases reported were female (58.3%, 361 395/ 619 668). This trend continued in the past week, 58.9% (7 379/12 532) of cases were female.

INCIDENCE
RISK FOR
WEEK 35
21.5%
CASES PER
100 000
PERSONS

24.5%
OF CASES
REPORTED IN
GAUTENG IN
WEEK 35

50-54
YEAR AGE
GROUP HAS
HIGHEST
CUMULATIVE
INCIDENCE
RISK

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 29 August 2020, a total of 625 056 laboratory-confirmed COVID-19 cases were reported in South Africa. This is 15 283 more cases than the number reported in the last report. The number of new cases detected in week 35 (12 639) was lower than the number of new cases detected in week 34 (20 121). Similar to the past few weeks, in the past week, Gauteng Province reported the highest percentage of new cases (3 101/12 639, 24.5%), followed by KwaZulu-Natal Province (2 295/12 639, 18.2%), and Free State Province (2 132/12 639, 16.9%) (Table 1). Five provinces, Gauteng Province (209 651/625 006, 33.5%), followed by KwaZulu-Natal (112 727/625 006, 18.0%), Western Cape (105 908/625 006, 16.9%), Eastern Cape (86 060/625 006, 13.8%) and Free State (37 558/625 006, 6.0%) provinces continued to contribute the majority (551 904/625 006, 88.3%) of total COVID-19 cases in South Africa. Overall there was minimal change in percent contribution of cases in the different provinces from week 34 to week 35.

In keeping with previous weeks, the Western Cape Province had the highest cumulative incidence risk (1 547.4 cases per 100 000 persons) followed by Gauteng Province (1381.5 cases per 100 000 persons). Free State Province (1 300.7 cases per 100 000 persons) replaced Eastern Cape (1282.1 cases per 100 000 persons) as the province with the 3rd highest cumulative incidence risk. The Limpopo Province remains the province with the lowest cumulative incidence risk (220.1 cases per 100 000 persons) reported to date.

The cumulative incidence risk for the country increased from 1037.9 cases per 100 000 persons in week 34 to 1063.9 cases per 100 000 persons in week 35. The cumulative incidence risk varied by province

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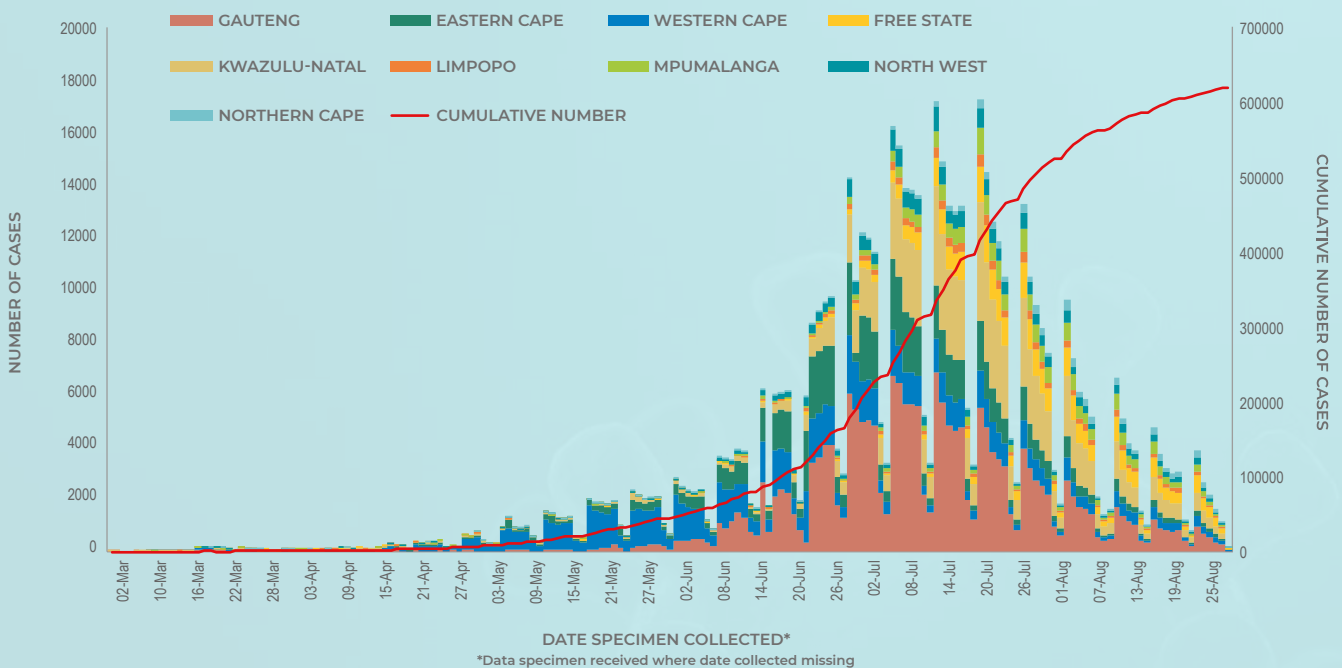
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over time (Figure 3). This is partly explained by testing differences by province (Table 1). In the past week, Free State Province and Northern Cape Province reported the highest weekly incidence risk (73.8 cases per 100 000 persons each), whereas Gauteng, North West and KwaZulu-Natal reported similar incidence risks, 20.4, 20.6 and 20.3 cases per 100 000 persons, respectively. In the past week all the provinces reported a decline in weekly incidence risk which varied in magnitude by province, Free State Province and Northern Cape reported the highest reduction compared to week 34 (73.8 vs 102.2 and 73.8 vs 102.1 cases per 100 000 persons) (Figure 4). The lowest reduction in weekly incidence risk was reported in North West Province, decreased by 5 cases per 100 000 persons. 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 34, the province reporting the longest doubling time was Eastern Cape province. In week 34, the estimated doubling time of number of cases continued to increase for all five provinces, increased to 220.1 days in Western Cape Province, 314.2

days in Eastern Cape Province, 172.7 days in Gauteng Province, 120.7 days in KwaZulu-Natal Province and 49.4 days in Free State Province.

The case-fatality ratio was 2.2% (14 028/625 056); an additional 969 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, 969 compared to 1 220. 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-29 August 2020 (n=623 589, 1467 missing dates of specimen collection/province allocation).



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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-29 August 2020 (n=623 589, 1467 missing dates of specimen collection/sector allocation)

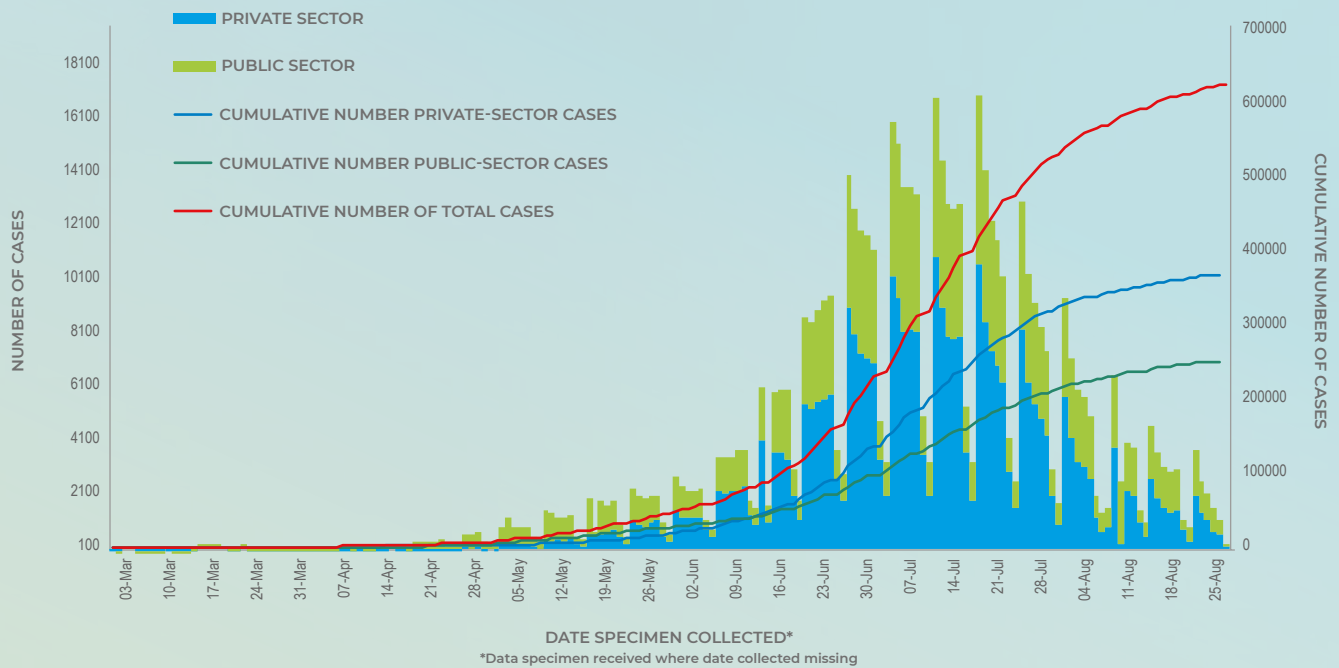


Table 1. Number and cumulative incidence risk of laboratory-confirmed cases of COVID-19 and testing per 100 000 persons by province, South Africa, 3 March-29 August 2020 (n=625 056)

Province	Cumulative cases (n) (percentage, n/total cases in South Africa)	New cases ¹ detected in week 34 (23 August-29 August 2020), n (percentage ² , n/total)	Population in mid-2019 ³ , n	Cumulative incidence risk (cases per 100 000 persons)	Incidence risk of new cases detected in week 35 (cases/100 000 persons)	Tests ⁴ per 100 000 persons, 23 August-29 August 2020
Eastern Cape	86 060 (13.8)	744 (5.9)	6 712 276	1282.1	11.1	94.2
Free State	37 558 (6.0)	2 132 (16.9)	2 887 465	1300.7	73.8	324.7
Gauteng	209 651 (33.5)	3 101 (24.5)	15 176 115	1381.5	20.4	191.4
KwaZulu-Natal	112 727 (18.0)	2 295 (18.2)	11 289 086	998.5	20.3	163.5
Limpopo	13 169 (2.1)	448 (3.5)	5 982 584	220.1	7.5	55.5
Mpumalanga	24 133 (3.9)	794 (6.3)	4 592 187	525.5	17.3	128.4
North West	25 232 (4.0)	831 (6.6)	4 027 160	626.5	20.6	94.8
Northern Cape	10 568 (1.7)	933 (7.4)	1 263 875	836.2	73.8	347.6
Western Cape	105 908 (16.9)	1 360 (10.8)	6 844 272	1547.4	19.9	209.3
Unknown	50	0	0	0	0	
Total	625 056	12 639	58 750 2200	1063.9	21.5	161.8

¹New cases refer to cases whose samples were collected or received in the current reporting week; ²Percentage=n/total number of new cases (specimen collected or received in current reporting week); ³2019 Mid-year population Statistics South Africa; ⁴Data on number of tests conducted sourced from COVID-19 weekly testing report of the same reporting week

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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-29 August 2020 (n=624 913, 143 missing epidemiologic week/province allocation)

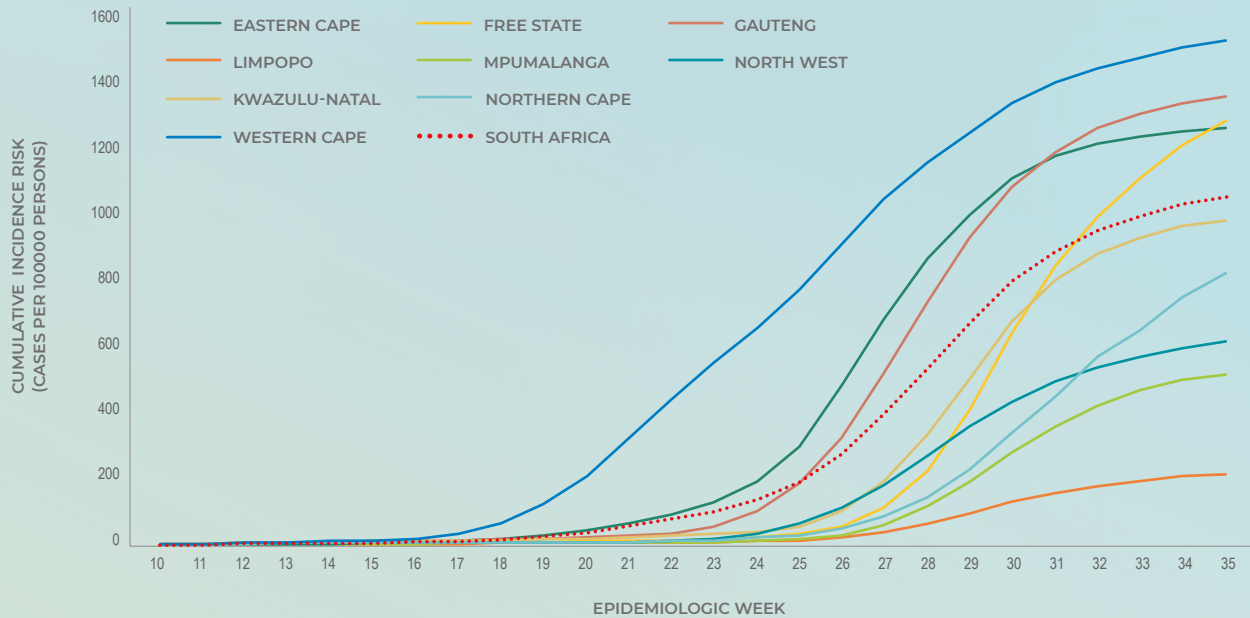


Figure 4. Weekly incidence risk of PCR-confirmed cases of COVID-19 by province and epidemiological week, South Africa, 3 March-29 August 2020 (n=624 913, 143 missing epidemiologic week /province allocation)

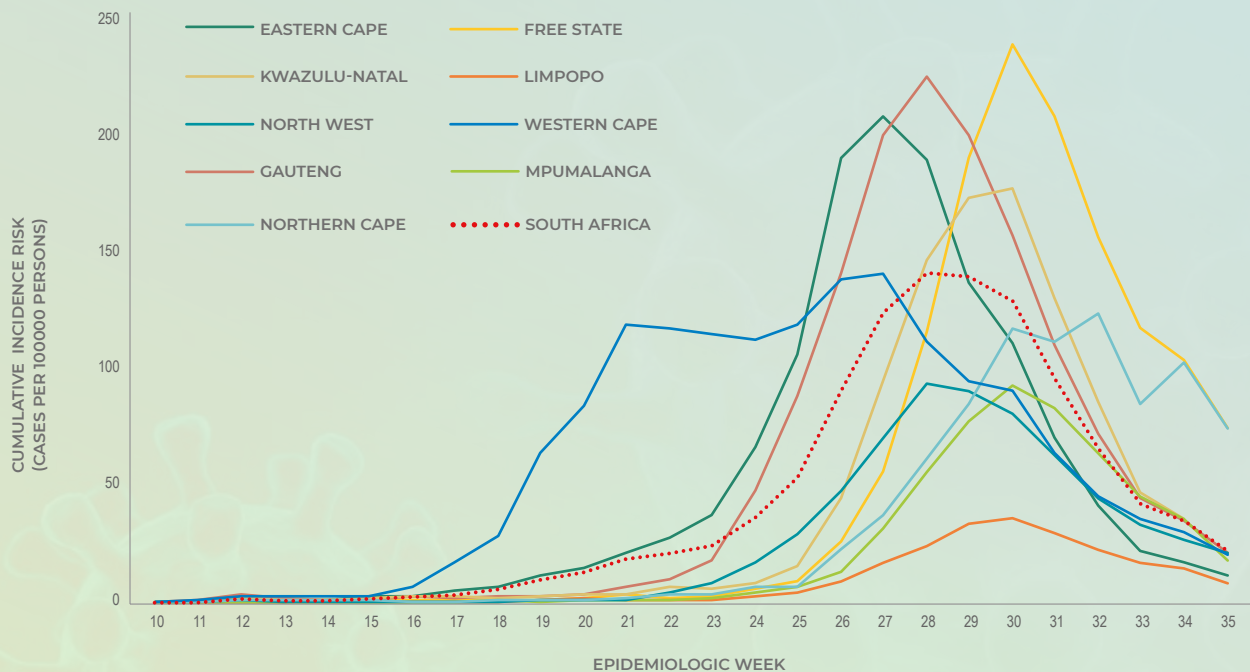
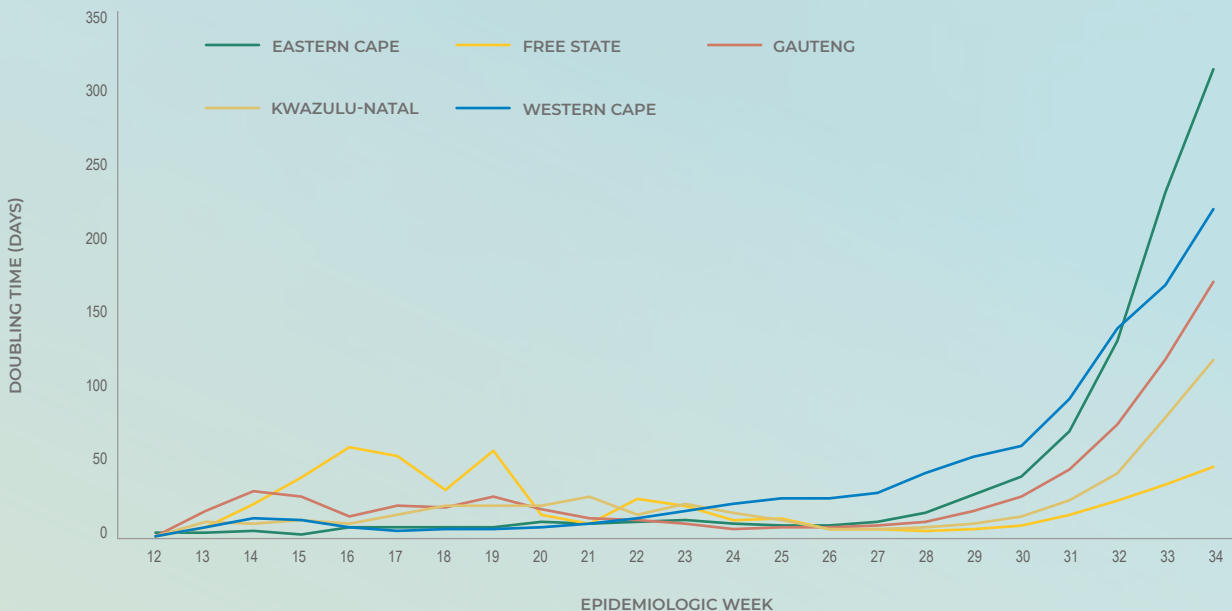


Figure 5. Doubling time of number of PCR-confirmed cases of COVID-19 by province (for 5 provinces with the majority of cases) and epidemiologic week, South Africa, 23 March-22 August 2020 (n=625 006)



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 30-52 years. The distribution of cases varied by age, with highest percentage of all cases to date in the 35-39-year (79 722/ 620 329, 12.9%) and 30-34-year (77 854/620 329, 12.6%) age group respectively (Figure 6). Similarly, among the cases reported in the past week, the highest percentage of cases was in the 35-39-year age group (1400/ 12 639, 11.1%) followed by the 30-34-year age group (1354/ 12 639, 10.7%). The median age for cases reported in week 35 was similar (41 years, IQR 29-54), to that of total cases (40 years). The highest cumulative incidence risk remained among cases aged 50-54 years (2 203 cases per 100 000 persons) and the lowest cumulative incidence risk was reported in the younger age-groups, 128.6 cases per 100 000 persons and 145.9 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 35, the highest weekly incidence risk was among cases in the ≥80-year age group (57.3 cases per 100 000 persons) followed by cases in the 50-54-year age group (43.8 cases per 100 000 persons) and the lowest weekly incidence risk was in the 0-4-year age group (3.0 cases per 100 000 persons).

To date, the majority of COVID-19 cases reported were female (58.3%, 361 395/ 619 668). This trend continued in the past week, 58.9% (7 379/12 532) of cases were female. The cumulative incidence risk has remained consistently higher among females (1 192.2 cases per 100 000 persons) than among males (894.7 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 50-54 years (Figure 8 and Figure 9). In week 35, the highest incidence risk for both males (58.0 cases per 100 000 persons) and females (51.9 cases per 100 000 persons) was among individuals aged ≥ 80 years. 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 (eg. 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.

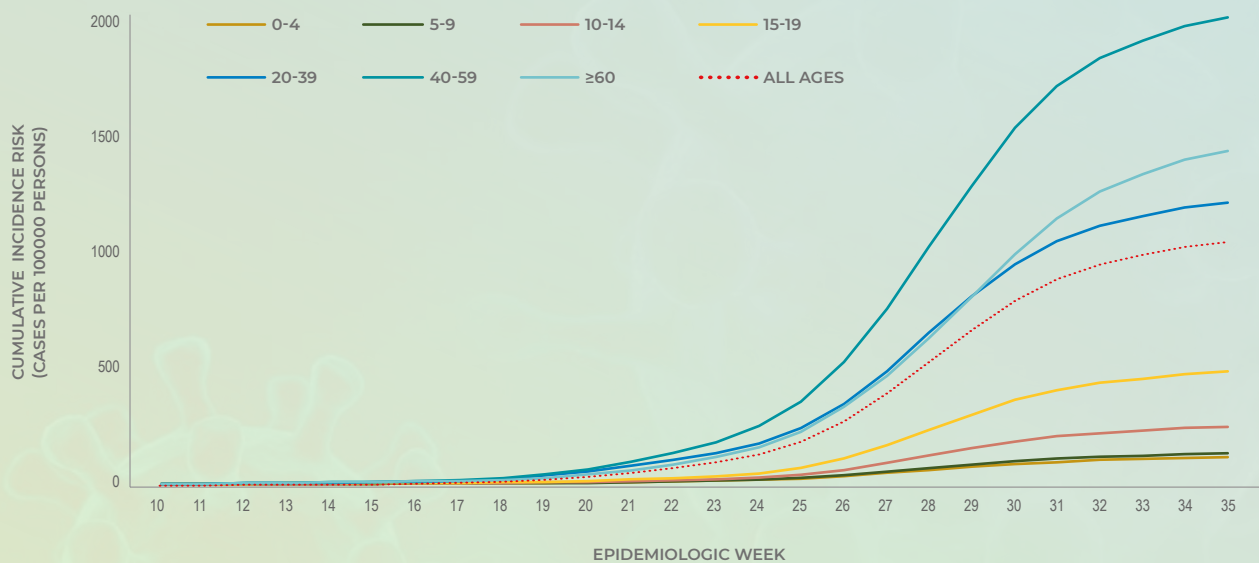
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Figure 6. Number of laboratory-confirmed cases of COVID-19 by age group and sex, South Africa, 3 March-29 August 2020 (n=615 426, sex/age missing for 9 630)



Figure 7. Cumulative incidence risk of PCR-confirmed cases of COVID-19 by age group in years and epidemiologic week, South Africa, 3 March-29 August 2020 (n= 620 236, 4 820 missing dates of specimen collection)



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Figure 8. Cumulative incidence risk by sex and epidemiological week, South Africa, 3 March-29 August 2020 (n=619 668, sex/ specimen collection date missing for 5 388)

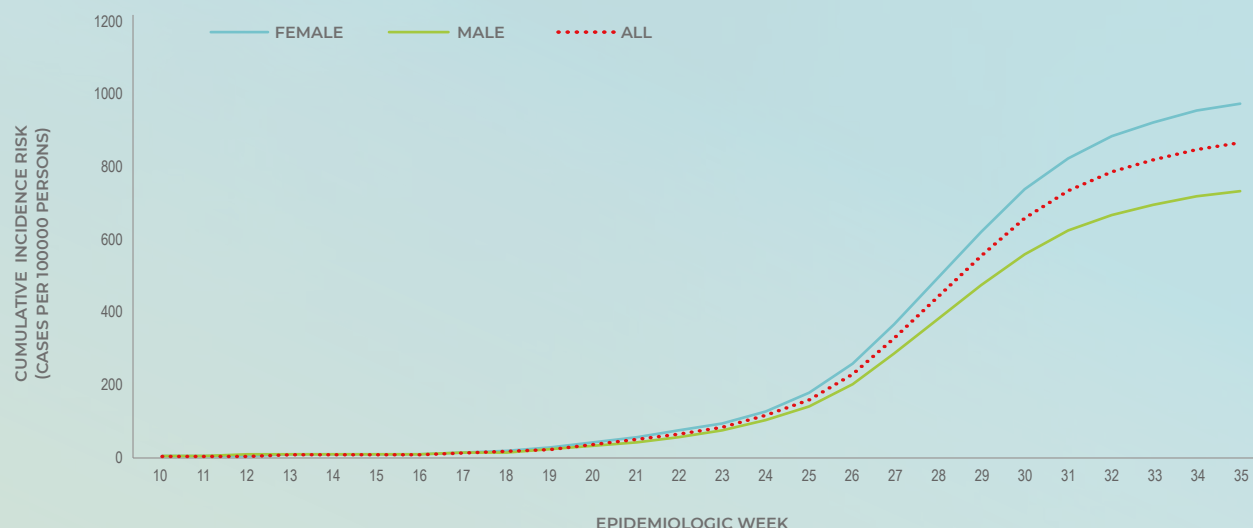
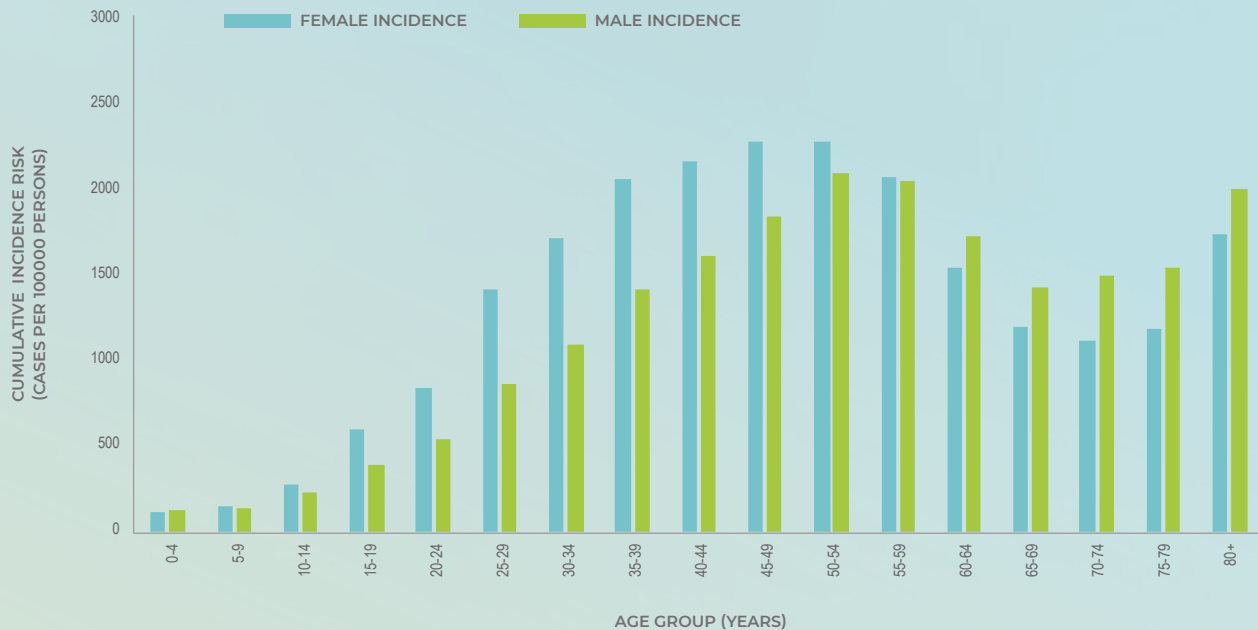


Table 2. Number of cases and cumulative/weekly incidence risk by age group, South Africa, 3 March-29 August 2020, n= 625 056

Age group (years)	Cumulative cases (n) (percentage, n/ total cases in South Africa)	New cases ¹ detected in week 34 (23 August-29 August 2020), n (percentage ² , n/total)	Population in mid-2019 ³ , n	Cumulative incidence risk (cases per 100 000 persons)	Incidence risk of new cases detected in week 35 (cases/100 000 persons)
0-4	7 375 (1.2)	173 (1.4)	5733 946	128.6	3.0
5-9	8 373 (1.3)	207 (1.6)	5737 439	145.9	3.6
10-14	14 345 (2.3)	361 (2.9)	5427 902	264.3	6.7
15-19	23 543 (3.8)	649 (5.1)	4660 002	505.2	13.9
20-24	34 302 (5.5)	704 (5.6)	4914 186	698.0	14.3
25-29	63 608 (10.2)	1 128 (8.9)	5528 571	1150.5	20.4
30-34	77 854 (12.5)	1 354 (10.7)	5537 963	1405.8	24.4
35-39	79 722 (12.8)	1 400 (11.1)	4571 175	1744.0	30.6
40-44	68 292 (10.9)	1 202 (9.5)	3585 408	1904.7	33.5
45-49	63 465 (10.2)	1 259 (10.0)	3045 617	2083.8	41.3
50-54	55 871 (8.9)	1 110 (8.8)	2535 048	2203.9	43.8
55-59	45 565 (7.3)	890 (7.0)	2192 512	2 078.2	40.6
60-64	29 173 (4.7)	678 (5.4)	1784 476	1 634.8	38.0
65-69	17 807 (2.8)	465 (3.7)	1370 121	1 299.7	33.9
70-74	12 077 (1.9)	367 (2.9)	949 812	1 271.5	38.6
75-79	7 918 (1.3)	243 (1.9)	597 874	1 324.4	40.6
≥80	11 039 (1.8)	324 (2.6)	602 969	1 830.8	53.7
Unknown	4 727	125			
Total	625 056	12 639	58775 021	1 063.5	21.5

¹New cases refer to cases whose samples were collected or received in the current reporting week; ²Percentage=n/total number of new cases (specimen collected or received in current reporting week); ³2019 Mid-year population Statistics South Africa

Figure 9. Cumulative incidence risk by age group and sex, South Africa, 3 March-29 August 2020 (n= 615 426, sex/age missing for 9 630)



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. To date, 625 056 cases, including 14 028 deaths have been reported. Similar to the previous two weeks, the incidence risk of cases per 100 000 persons for all provinces continued to decrease compared to the preceding week. In week 35, Eastern Cape Province reported the longest doubling time of number of cases. 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.