

COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

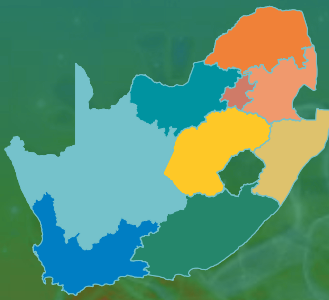


NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 34 2020

CUMULATIVE DATA FROM



CASES

609 773
IN TOTAL

17 459
THIS WEEK

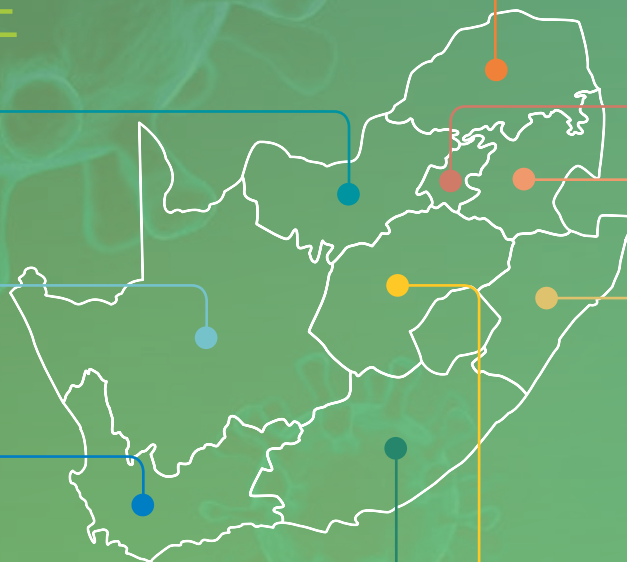


PERSONS

1037.9
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 22 August 2020 (week 34 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 22 August 2020, a total of 609 773 laboratory-confirmed COVID-19 cases had been detected in South Africa. Of these, 22 428 were cases reported since the last report. The number of new cases detected in week 34 (17 459) was lower than the number of new cases detected in week 33 (24 487).
- An additional 1 220 deaths were reported since the last report. The overall case-fatality ratio was 2% (13 059/609 773, 2.1%).
- Five provinces, Gauteng Province (206 021/609 723, 33.8%), followed by KwaZulu-Natal (109 841/609 723, 18.0%), Western Cape (104 588/609 723, 17.2%), Eastern Cape (85 203/609 723, 14.0%) and Free State (34 978/609 723, 5.7%) provinces continued to contribute the majority (540 631/609 723, 88.6%) of total COVID-19 cases in South Africa.
- Similar to the previous few weeks, in the past week, Gauteng Province reported the highest percentage of new cases (4746/17 459, 27.2 %), followed by KwaZulu-Natal Province (3 353/17 459, 19.2%), and Free State Province (2 505/17 459, 14.3%).
- All the provinces reported a decline in weekly incidence risk in the past week as compared to week 33, the decrease in weekly incidence risk varied in magnitude, with Free State Province reporting the largest decline (86.7 compared to 116.1 cases per 100 000) followed by Northern Cape Province (64.9 vs 82.8 cases per 100 000 persons).
- In week 33, the estimated doubling time of number of cases of the five provinces reporting the majority of cases continued to increase, increased to 170.1 days in Western Cape Province, 231.6 days in Eastern Cape Province, 119.8 days in Gauteng Province, 43.8 days in KwaZulu-Natal Province and to 36.4 days in Free State Province.
- To date, the highest cumulative incidence risk was reported among cases aged 50-54 years (2152.1 cases per 100 000 persons) and the lowest cumulative incidence risk was reported in the younger age-groups (124.5 cases per 100 000 persons and 141.4 cases per 100 000 persons) in the 0-4- and 5-9-year age groups respectively.
- The cumulative incidence risk has remained consistently higher among females (1170.8 cases per 100 000 persons) than among males (879.1 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 22 August 2020, a total of 609 773 laboratory-confirmed COVID-19 cases were reported in South Africa. This is 22 428 more cases than the number reported in the last report. The number of new cases detected in week 34 (17 459) was lower than the number of new cases detected in week 33 (24 487). Similar to the past few weeks, in the past week, Gauteng Province reported the highest percentage of new cases (4746/17 459, 27.2%), followed by KwaZulu-Natal Province (3 353/17 459, 19.2%), and Free State Province (2 505/17 459, 14.3%) (Table 1). Five provinces, Gauteng Province (206 021/609 723, 33.8%), followed by KwaZulu-Natal (109 841/609 723, 18.0%), Western Cape (104 588/609 723, 17.2%), Eastern Cape (85 203/609 723, 14.0%) and Free State (34 978/609 723, 5.7%) provinces continued to contribute the majority (540 631/609 723, 88.6%) of total COVID-19 cases in South Africa. There was not much change in the rest of the provinces, which reported less than 5% each. Overall there was minimal change in percent contribution of cases in the different provinces from week 33 to week 34.

In keeping with previous weeks, the Western Cape Province had the highest cumulative incidence risk (1 528.1 cases per 100 000 persons); with Gauteng Province (1357.5 cases per 100 000 persons) and the Eastern Cape Province (1269.4 cases per 100 000 persons) with the second and third highest cumulative incidence risk, respectively. The Limpopo Province remains the province with the lowest cumulative incidence risk (210.2 cases per 100 000 persons) reported to date.

The cumulative incidence risk for the country increased from 999.7 cases per 100 000 persons in week 33 to 1037.9 cases per 100 000 persons in week

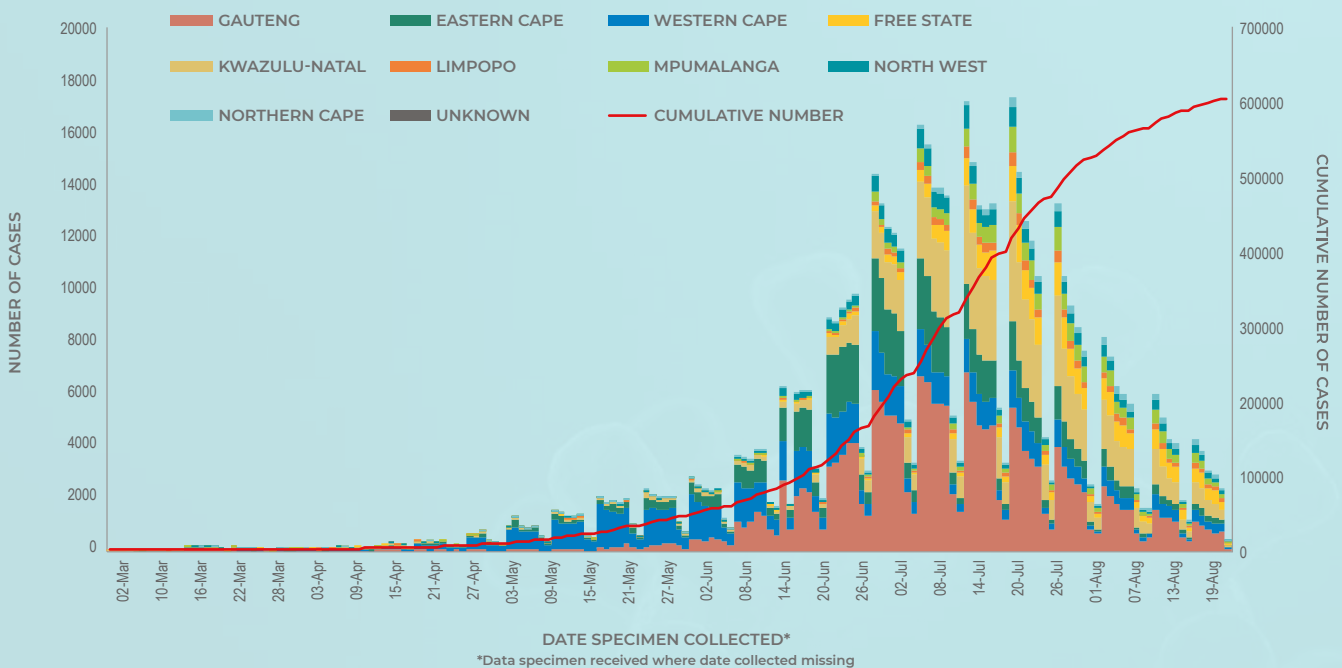
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34. The cumulative incidence risk varied by province over time (Figure 3). This is partly explained by testing differences by province (Table 1). Similar to the past few weeks, Free State Province reported the highest weekly incidence risk (86.7 cases per 100 000 persons) followed by Northern Cape Province (64.9 cases per 100 000 persons) and Gauteng Province (31.3 cases per 100 000 persons) in week 34. All the provinces reported a decline in weekly incidence risk in the past week as compared to week 33, the decrease in weekly incidence risk varied in magnitude, with Free State Province reporting the largest decline (86.7 compared to 116.1 cases per 100 000) followed by Northern Cape Province (64.9 vs 82.8 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 33, the estimated doubling time of number of cases continued to increase for all five provinces to 170.1 days in Western Cape Province, 231.6 days in Eastern Cape Province, 119.8 days in Gauteng Province, 81.8 days in KwaZulu-Natal Province and 36.4 days in Free State Province. In week 33 Eastern Cape had the highest increase in doubling time exceeding Western Cape.

To date, the case-fatality ratio remained $\leq 2\%$ (13 059/609 773, 2.1%); an additional 1 220 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, 1 220 compared to 1 431. 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-22 August 2020 (n=609 687, 86 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-22 August 2020 (n=609 687, 86 missing dates of specimen collection/sector allocation)

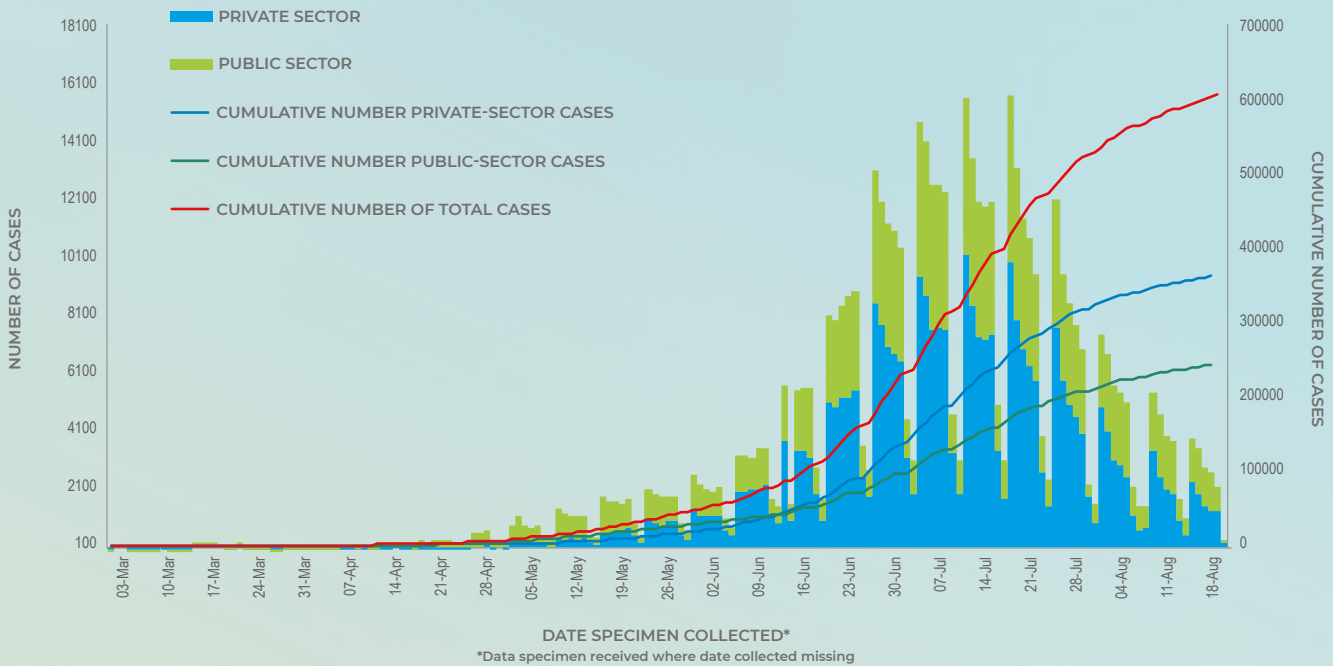


Table 1. Number and cumulative incidence risk of laboratory-confirmed cases of COVID-19 and testing per 100 000 persons by province, South Africa, 9 March-22 August 2020 (n= 609 723, 50 missing province allocation)

Province	Cumulative cases (n) (percentage, n/total cases in South Africa)	New cases ¹ detected in week 34 (16 August-22 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 34 (cases/100 000 persons)	Tests ⁴ per 100 000 persons, 16 August-22 August 2020
Eastern Cape	85 203 (14.0)	1 063 (6.1)	6 712 276	1269.4	15.8	108.4
Free State	34 978 (5.7)	2 504 (14.3)	2 887 465	1211.4	86.9	339.5
Gauteng	206 021 (33.8)	4 746 (27.2)	15 176 115	1357.5	31.3	202.7
KwaZulu-Natal	109 841 (18.0)	3 353(19.2)	11 289 086	973.0	29.7	187.2
Limpopo	12 575 (2.1)	737 (4.2)	5 982 584	210.2	12.3	61.0
Mpumalanga	23 083 (3.8)	1 349 (7.7)	4 592 187	502.7	29.4	143.1
North West	24 305 (4.0)	948 (5.4)	4 027 160	603.5	23.5	101.8
Northern Cape	9 129 (1.5)	820 (4.7)	1 263 875	722.3	64.9	324.4
Western Cape	104 588 (17.2)	1 939 (11.1)	6 844 272	1528.1	28.3	217.1
Province not allocated	50	0	0			
Total	609 773	17 459	58 750 2200	1037.9	29.7	174.4

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 epidemiological week, South Africa, 3 March-22 August 2020 (n=609 687, 86 missing dates of specimen collection/province allocation)

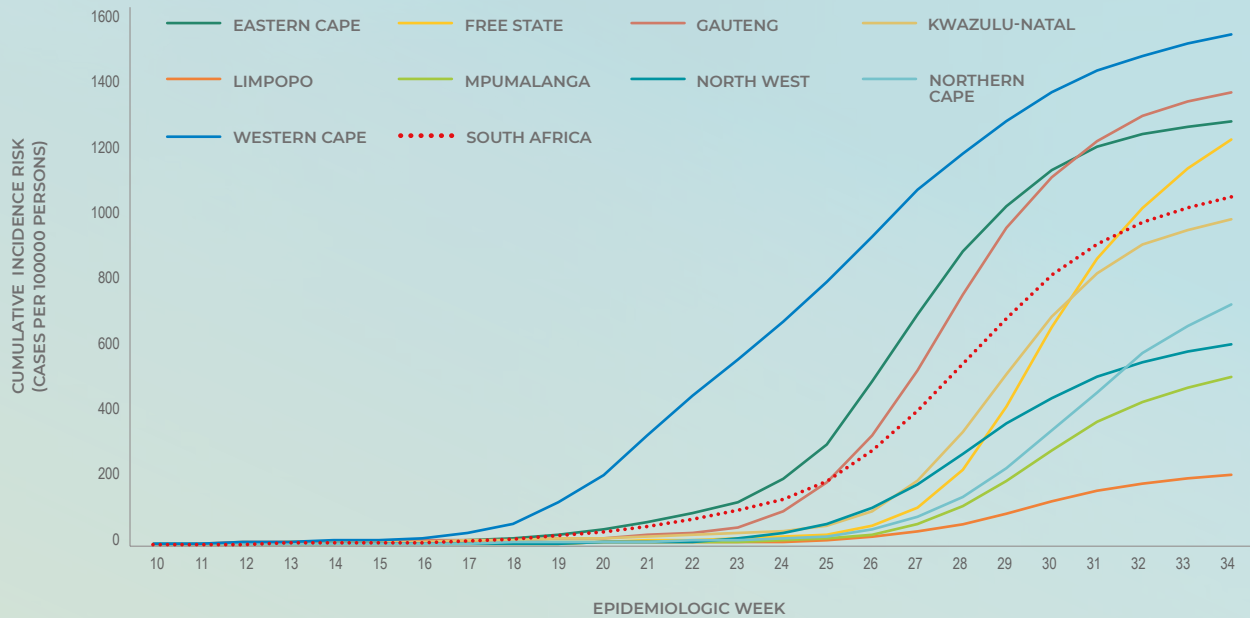


Figure 4. Weekly incidence risk of PCR-confirmed cases of COVID-19 by province and epidemiological week, South Africa, 3 March-22 August 2020 (n=609 687, 86 missing dates of specimen collection/province allocation)

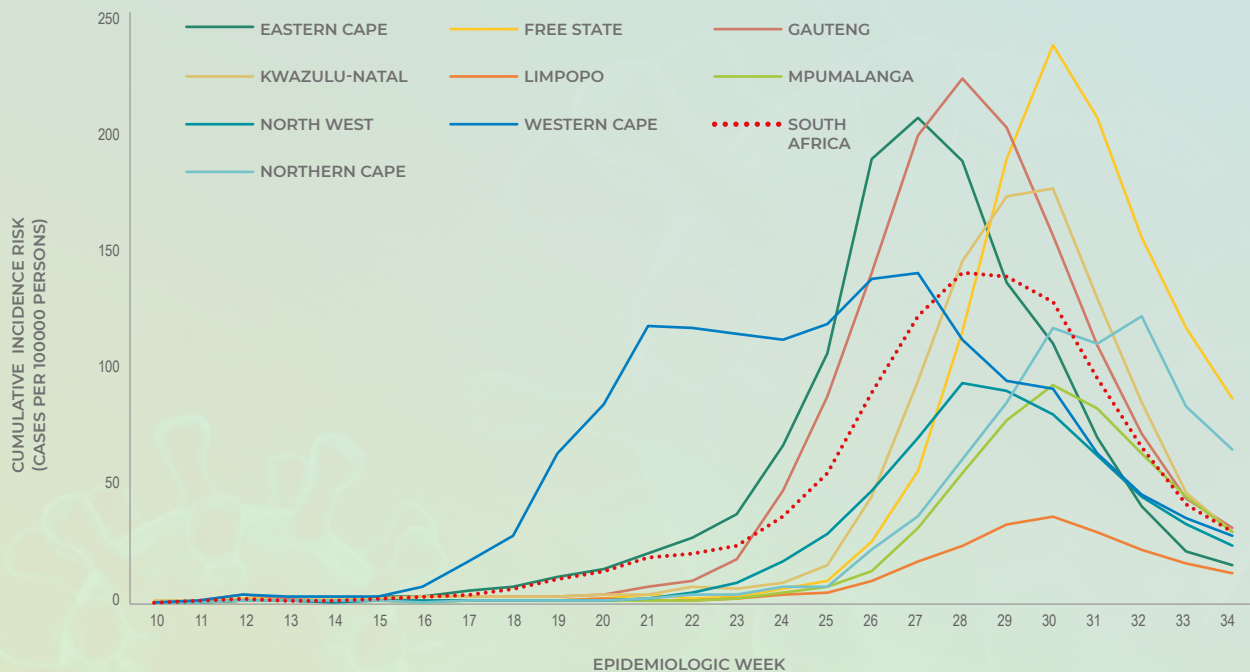
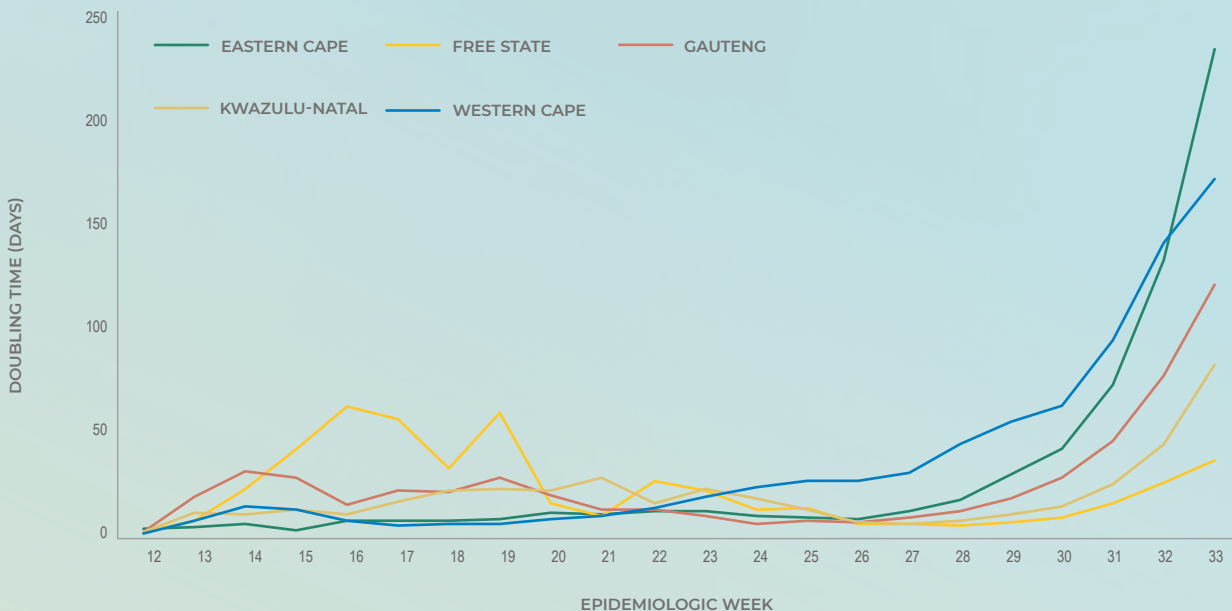


Figure 5. Doubling time of number of PCR-confirmed cases of COVID-19 by province (for 5 provinces with the majority of cases) and epidemiologic week, South Africa, 23 March-15 August 2020 (n=540 631)



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 35-40-year age group (76 218/ 605 204, 12.6%) and (78 022/605 204, 12.9%) in the 30-34-year and 35-40-year 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 (1 979/17 321, 11.4%) followed by the 30-34-year age group (1 875/17321, 10.8%). The median age for cases reported in week 34 was similar (41 years, IQR 30-51), to that of total cases (40 years). The highest cumulative incidence risk was reported among cases aged 50-54 years (2152.1 cases per 100 000 persons) and the lowest cumulative incidence risk was reported in the younger age-groups, 124.5 cases per 100 000 persons and 141.4 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 34, the highest weekly incidence risk was among cases aged ≥ 80 (115.4 cases per 100 000 persons) and the lowest incidence risk was in the 0-4-year age group (4.4 cases per 100 000 persons).

To date, the majority of COVID-19 cases reported were female (58.3%, 352 441/ 604 516). This was similar to the percentage reported in the past week (60.2%, 10 419/17 314). The cumulative incidence risk has remained consistently higher among females (1 170.8 cases per 100 000 persons) than among males (879.1 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). The female predominance differs from what is seen in most other countries. Data from other countries suggest that men have a similar risk of infection to women but men are more at risk of severe illness and the increased risk in men generally increases with increasing age⁽¹⁻⁵⁾. The highest weekly incidence in week 34 was among females (34.9 cases per 100 000 cases vs.24.0 cases per 100 000 persons) in men. The high prevalence and incidence risk among females could be explained by the fact that females are 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.

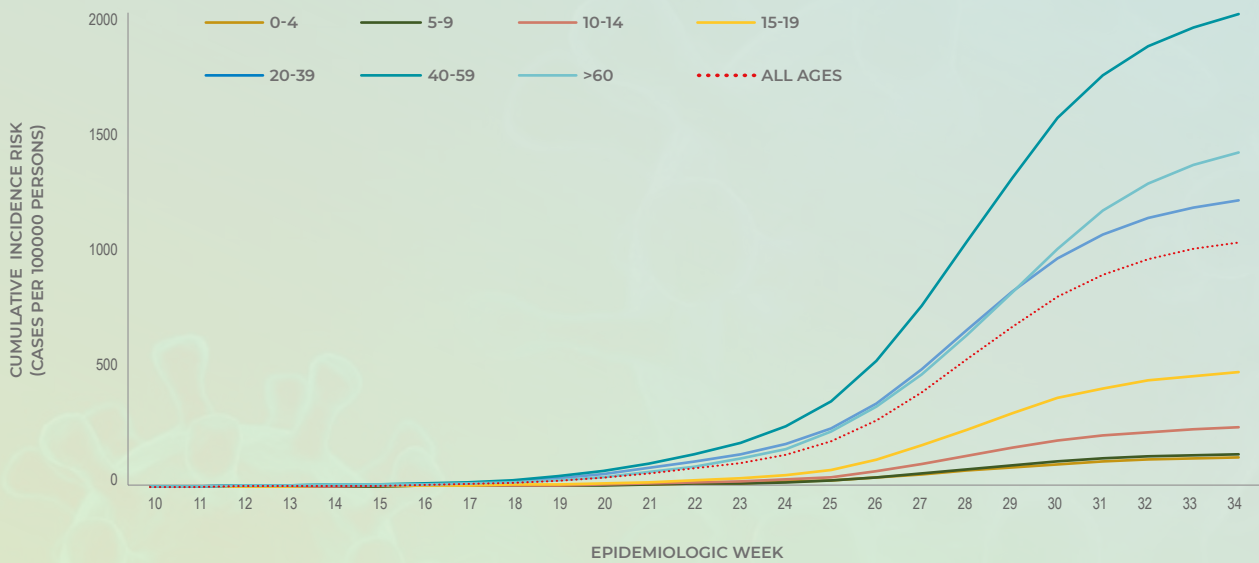
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Figure 6. Number of laboratory-confirmed cases of COVID-19 by age group and sex, South Africa, 3 March-22 August 2020 (n= 600 389, sex/age missing for 9 344)



Figure 7. Cumulative incidence risk of PCR-confirmed cases of COVID-19 by age group in years and epidemiologic week, South Africa, 3 March-22 August 2020 (n= 602 122, 4 651 missing dates of specimen collection)



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Figure 8. Cumulative incidence risk by sex and epidemiological week, South Africa, 3 March-22 August 2020 (n=604 492, sex/ specimen collection date missing for 5 281)

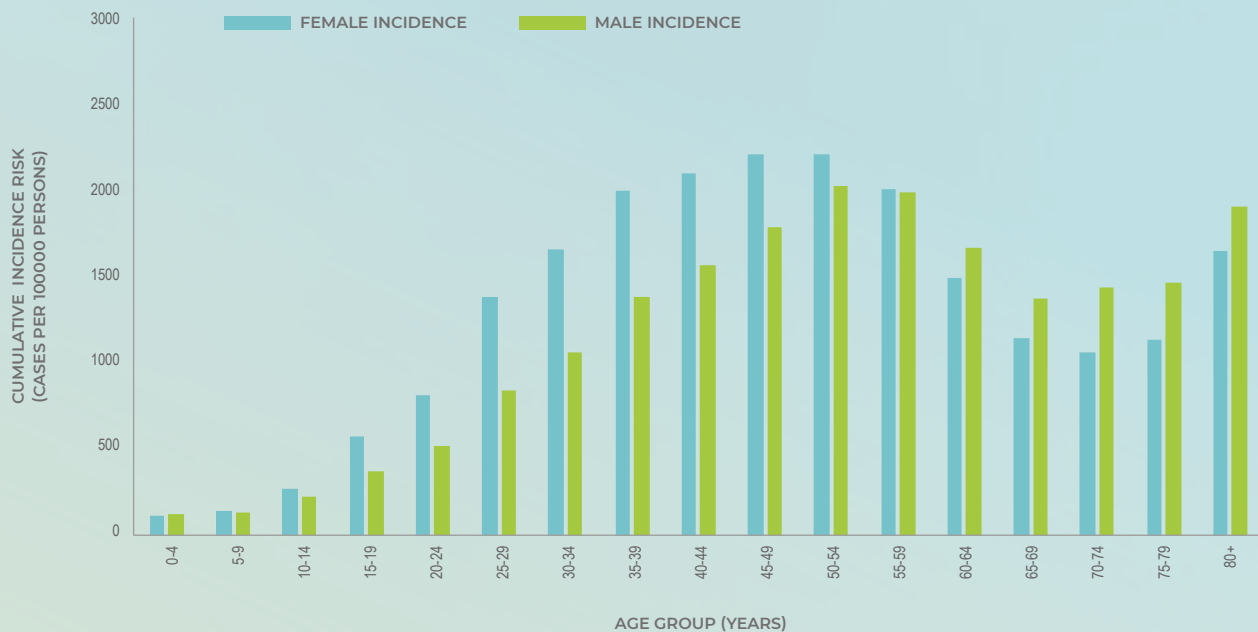


Table 2. Number of cases and cumulative/weekly incidence risk by age group, South Africa, 3 March-22 August 2020, n=609, 773

Age group (years)	Cumulative cases (n) (percentage, n/ total cases in South Africa)	New cases ¹ detected in week 34 (16 August-22 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 34 (cases/100 000 persons)
0-4	7 140 (1.2)	222 (1.3)	5733 946	124.5	3.9
5-9	8 112 (1.3)	259 (1.5)	5737 439	141.4	4.5
10-14	13 891 (4.3)	515 (2.9)	5427 902	255.9	9.5
15-19	22 733 (3.7)	760 (4.4)	4660 002	487.8	16.3
20-24	33 437 (5.5)	972 (5.6)	4914 186	680.4	19.8
25-29	62 275 (10.3)	1 590 (9.1)	5528 571	1 126.4	28.8
30-34	76 218 (12.6)	1 875 (10.7)	5537 963	1 376.3	33.9
35-39	78 022 (12.9)	1 979 (11.3)	4571 175	1 706.8	43.3
40-44	66 866 (11.0)	1 753 (10.0)	3585 408	1 864.9	48.9
45-49	62 013 (10.2)	1 696 (9.7)	3045 617	2 036.1	55.7
50-54	54 558 (9.0)	1 478 (8.5)	2535 048	2 152.1	58.3
55-59	44 497 (7.0)	1 305 (7.5)	2192 512	2 029.5	59.5
60-64	28 349 (4.7)	931 (5.3)	1784 476	1 588.6	52.2
65-69	17 228 (2.8)	673 (3.9)	1370 121	1 257.4	49.1
70-74	11 633 (1.9)	493 (2.8)	949 812	1 224.8	51.9
75-79	7 617 (1.3)	306 (1.8)	597 874	1 274.0	51.2
≥80	10 611 (1.8)	514 (2.9)	602 969	1 759.8	85.2
Unknown	4 569				
Total	609 773	17 459	58 775 021	1 037.5	29.7

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-22 August 2020 (n= 600 389, sex/age missing for 9 344)



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, albeit at a much slower rate than in the earlier weeks, with numbers of new cases identified each week decreasing week on week. To date, 609 773 cases, including 13 059 deaths have been reported. In the past week (week 34), the incidence risk of cases per 100 000 persons for all provinces was lower than that reported for week 33. The proportional contribution of the five provinces which contribute a majority of cases (Gauteng, Eastern Cape, Western Cape, KwaZulu-Natal and Free State) remained the same to previous week. Eastern Cape reported the highest increase in doubling time surpassing Western Cape Province. 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.

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