

COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

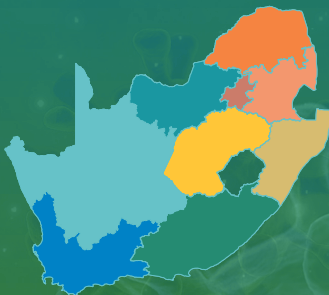


NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 43 2020

CUMULATIVE DATA FROM



CASES

715 868
IN TOTAL

10 015
THIS WEEK

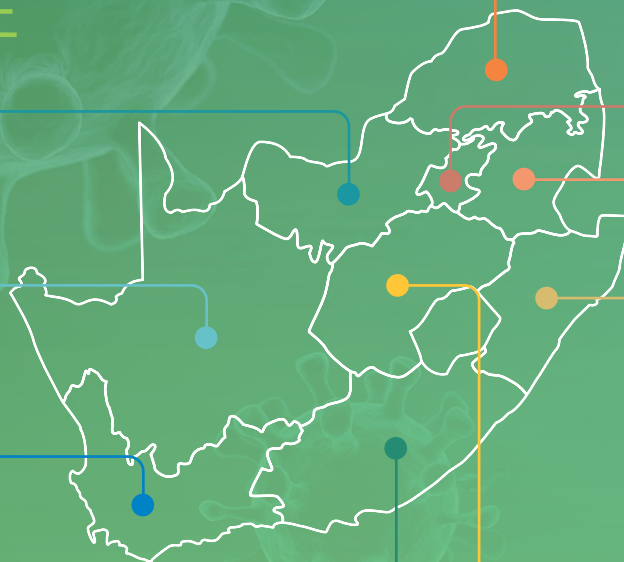


PERSONS

1 200,7
INCIDENCE RISK*

39
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 24 October 2020 (week 43 of 2020). Note: COVID-19 is the name of the disease and SARS-CoV-2 is the name of the virus. Trends in numbers of new cases by province and age group may be affected by changes in testing practice and delays in testing of specimens. The numbers reported may change as more data become available.

Highlights

- As of 24 October 2020, a total of 715 868 laboratory-confirmed COVID-19 cases had been detected in South Africa. Of these, 12 075 were cases reported since the last report. There was a 13.0% decrease in number of new cases detected in week 43 (10 015) compared to the number of new cases detected in week 42 (11 515).
- An additional 537 deaths were reported since the last report. The overall case-fatality ratio was 2.6% (18 968/715 868).
- To date, five provinces, Gauteng (227 196/715 868, 31.7%), KwaZulu-Natal (122 265/715 868, 17.1%), Western Cape (116 150/715 868, 16.2%), Eastern Cape (93 986/715 868, 13.1%) and Free State (55 617/715 868, 7.8%) continued to report the majority (615 214/715 868, 85.9%) of total COVID-19 cases in South Africa.
- In the past week, Eastern Cape Province reported the highest number of new cases (1 802/10 015, 18.0%), followed by Gauteng Province (1 775/10 015, 17.7%), and Free State Province (1 748/10 015, 17.5%).
- In the previous week, six provinces reported cumulative incidence risk above 1000 cases per 100 000 persons; Free State Province reported the highest cumulative incidence risk (1 898.9 cases per 100 000 persons), followed by Western Cape Province (1 657.9 cases per 100 000 persons), Northern Cape Province (1 653.5 cases per 100 000 persons), Gauteng Province (1 466.9 cases per 100 000 persons), Eastern Cape Province (1 395.7 cases per 100 000 persons), and KwaZulu-Natal Province (1 060.3 cases per 100 000 persons).
- In the past week seven provinces reported a decline in weekly incidence risk, compared to week 42; reduction ranged from 33 cases per 100 000 persons (36.2% reduction) in Northern Cape Province to 2 cases per 100 000 persons (22.7%, 21.2% and 16.8% reduction) in Limpopo, KwaZulu-Natal and in Gauteng provinces. There was an increase in weekly incidence risk of 2 cases per 100 000 persons in Western Cape Province (10.5% increase) and 10 cases per 100 000 persons in Eastern Cape Province (55.7% increase).
- In the past week, Free State Province (59.7 cases per 100 000 persons) followed by Northern Cape Province (58.4 cases per 100 000 persons), Eastern Cape Province (26.8 cases per 100 000 persons), and Western Cape Province (23.4 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 43, the highest weekly incidence risk was in cases aged 55-59 years (33.2 cases per 100 000 persons), followed by cases aged 50-54 years (32.3 cases per 100 000 persons). The lowest weekly incidence risk was in the 0-4-year age group (2.2 cases per 100 000 persons).
- To date, the majority of COVID-19 cases reported were female (58.2%, 413 273/709 664). This trend continued in the past week, 57.6% (5 716/9 925) of cases were female.

INCIDENCE RISK FOR WEEK 43

16.8
CASES PER 100 000 PERSONS

18.0%
OF CASES REPORTED IN EASTERN CAPE IN WEEK 43

IN WEEK 43, THE HIGHEST WEEKLY INCIDENCE RISK WAS IN CASES AGED 55-59 YEARS (33.2 CASES PER 100 000 PERSONS)

Methods

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

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

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

As of 24 October 2020, a total of 715 868 laboratory-confirmed COVID-19 cases were reported in South Africa. This is 12 075 more cases than the number reported in the last report. The number of new cases detected in week 43 (10 015) was lower than the number of new cases detected in week 42 (11 515), this represented a 13.0% decrease compared to the previous week. In the past week, Eastern Cape Province reported the highest percentage of new cases (1 802/10 015, 18.0%), followed closely by Gauteng Province (1 775/10 015, 17.7%) and Free State Province (1 748/10 015, 17.5%) (Table 1). Five provinces, Gauteng (227 196/715 868, 31.7%), KwaZulu-Natal (122 265/715 868, 17.1%), Western Cape (116 150/715 868, 16.2%), Eastern Cape (93 986/715 868, 13.1%) and Free State (55 617/715 868, 7.8%) continued to contribute the majority (615 214/715 868, 85.9%) 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 42 to week 43.

The cumulative incidence risk for the country increased from 1 183.9 cases per 100 000 persons in week 42 to 1 200.7 cases per 100 000 persons in week 43. The cumulative incidence risk varied by province over time (Figure 3). This is partly explained by testing differences by province (Table 1). The Free State Province had the highest cumulative incidence risk (1 898.9 cases per 100 000 persons), followed by Western Cape Province (1 657.9 cases per 100 000 persons), Northern Cape Province (1 653.5 cases per 100 000 persons), Gauteng Province (1 466.9 cases per 100 000 persons), Eastern Cape Province (1 395.7 cases per 100 000 persons), and KwaZulu-Natal Province (1 060.3 cases per 100 000 persons). The other provinces continued to report cumulative incidence risk below 1000 cases per 100 000 persons, with Limpopo Province reporting the lowest cumulative incidence risk (294.2 cases per 100 000).

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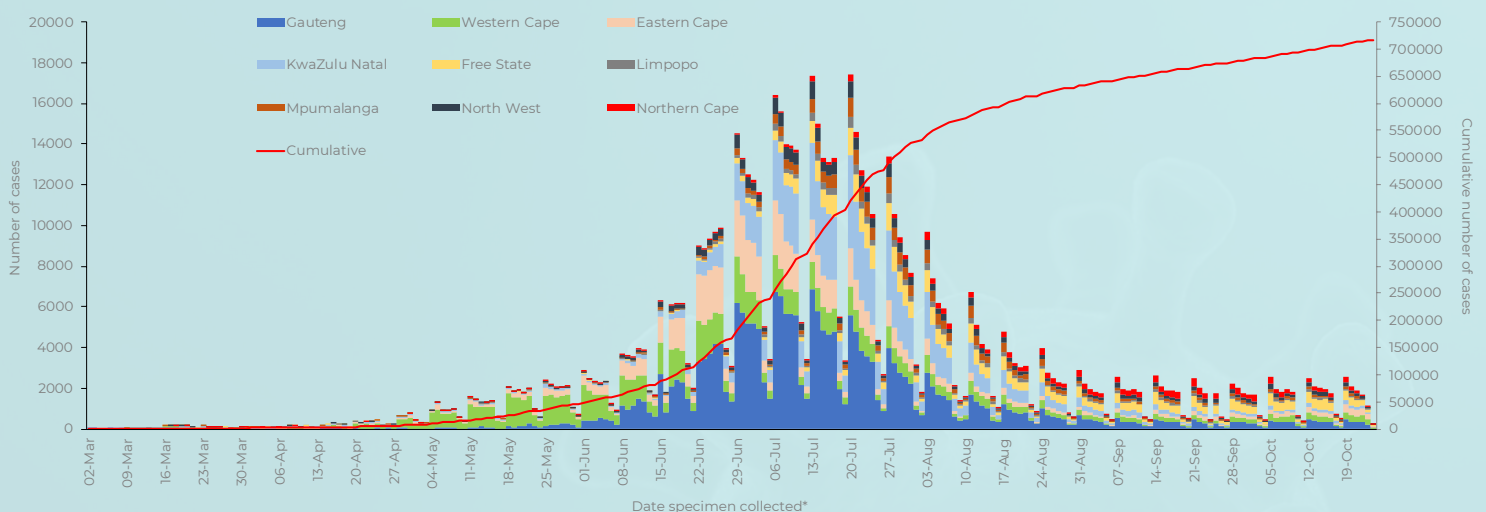
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In the past week, Free State Province reported the highest weekly incidence risk (59.7 cases per 100 000 persons), followed by Northern Cape Province (58.4 cases per 100 000 persons), Eastern Cape Province (26.8 cases per 100 000 persons), and Western Cape Province (23.4 cases per 100 000 persons). The weekly incidence risk in all the other provinces was less than 20 cases per 100 000 persons. In the past week, seven provinces reported a decline in weekly incidence risk; Free State, Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga, North West, and Northern Cape provinces. The reduction ranged from 33 cases per 100 000 persons (36.2% reduction) in Northern Cape Province to 2 cases per 100 000 persons (22.7% reduction in Limpopo Province, 21.2% reduction in KwaZulu-Natal Province, and 16.8% reduction in Gauteng Province). There was an increase in weekly incidence risk of 2 cases per 100 000 persons in Western Cape Province (10.5% increase) and 10 cases per 100 000 persons in Eastern Cape Province (55.7% increase) in the past week compared to week 42 (Figure 4). Since the peak of weekly incidence risk experienced at different levels and weeks by the different provinces (Western Cape and Eastern Cape peaked earlier in week 27 and Northern Cape peaked last in week 30) all the provinces are reporting an overall gradual decline, some with sporadic increases, 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, in week 42 it increased in three provinces; Free State Province (from 82.7 days to 84.7 days, 2.5% increase), Gauteng Province (from 446.0 days to 452.1 days, 1.4% increase) and Western Cape Province (from 314.2 days to 320.3 days, 1.9% increase) (Figure 5). In week 42, the estimated doubling time of number of cases decreased from 363.2 days to 329.5 days (9.3% decrease) in the Eastern Cape Province, from 732.8 days to 525.2 days, (28.3% decrease) in the KwaZulu-Natal Province, compared to week 41.

The case-fatality ratio was 2.6% (18 968/715 868); an additional 537 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, 537 compared to 651. 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-24 October 2020 (n=715 868)

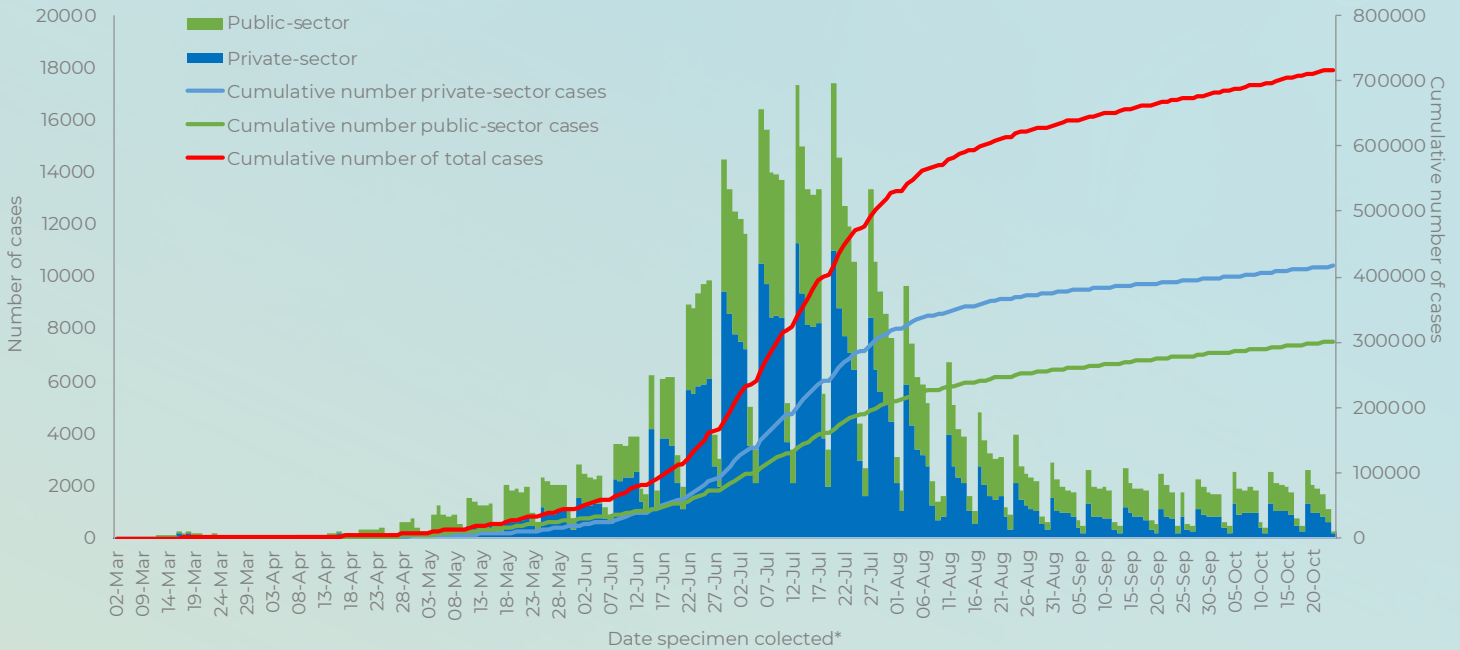


*Date specimen received where date collected missing

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Figure 2. Number and cumulative number of laboratory-confirmed cases of COVID-19, by testing laboratory sector and date of specimen collection, South Africa, 3 March-24 October 2020 (n=715 868)



*Date specimen received where date collected missing

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-24 October 2020 (n=715 868)

Province	Cumulative cases (n) (percentage, n/total cases in South Africa)	New cases ¹ detected in 43 (18-24 October 2020), n (percentage ² , n/total)	Population in mid-2020 ³ , n	Cumulative incidence risk (cases per 100 000 persons)	Incidence risk of new cases detected in week 43 (cases/100 000 persons)	Tests ⁴ per 100 000 persons, 18-24 October 2020
Eastern Cape	93 986 (13.1)	1 802 (18.0)	6 734 001	1395.7	26.8	162.4
Free State	55 617 (7.8)	1 748 (17.5)	2 928 903	1898.9	59.7	336.1
Gauteng	227 196 (31.7)	1 775 (17.7)	15 488 137	1466.9	11.5	214.1
KwaZulu-Natal	122 265 (17.1)	775 (7.7)	11 531 628	1060.3	6.7	144.5
Limpopo	17 216 (2.4)	361 (3.6)	5 852 553	294.2	6.2	48.0
Mpumalanga	29 335 (4.1)	439 (4.4)	4 679 786	626.8	9.4	114.3
North West	32 727 (4.6)	723 (7.2)	4 108 816	796.5	17.6	105.1
Northern Cape	21 376 (3.0)	755 (7.5)	1 292 786	1653.5	58.4	321.2
Western Cape	116 150 (16.2)	1 637 (16.3)	7 005 741	1657.9	23.4	252.6
Unknown	0	0	0			
Total	715 868	10 015	59 622 351	1200.7	16.8	176.0

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); ³2020 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-24 October 2020 (n=715 868)

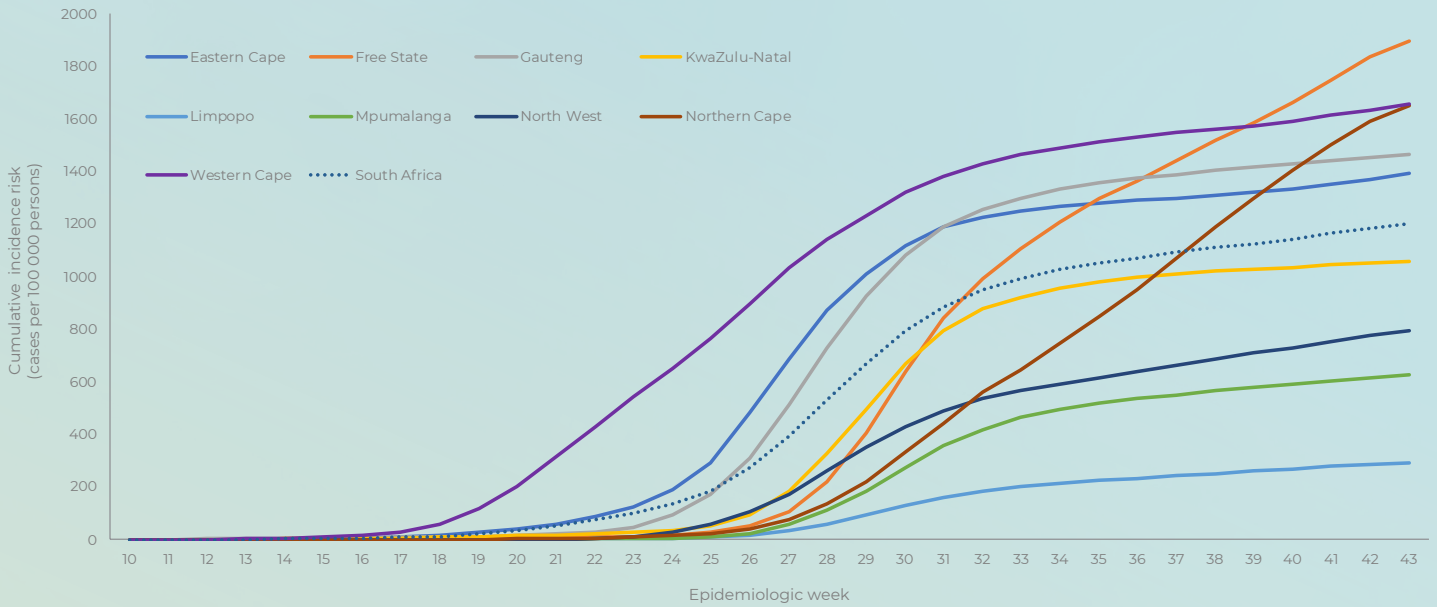


Figure 4. Weekly incidence risk of PCR-confirmed cases of COVID-19 by province and epidemiologic week, South Africa, 3 March-24 October 2020 (n=715 868)

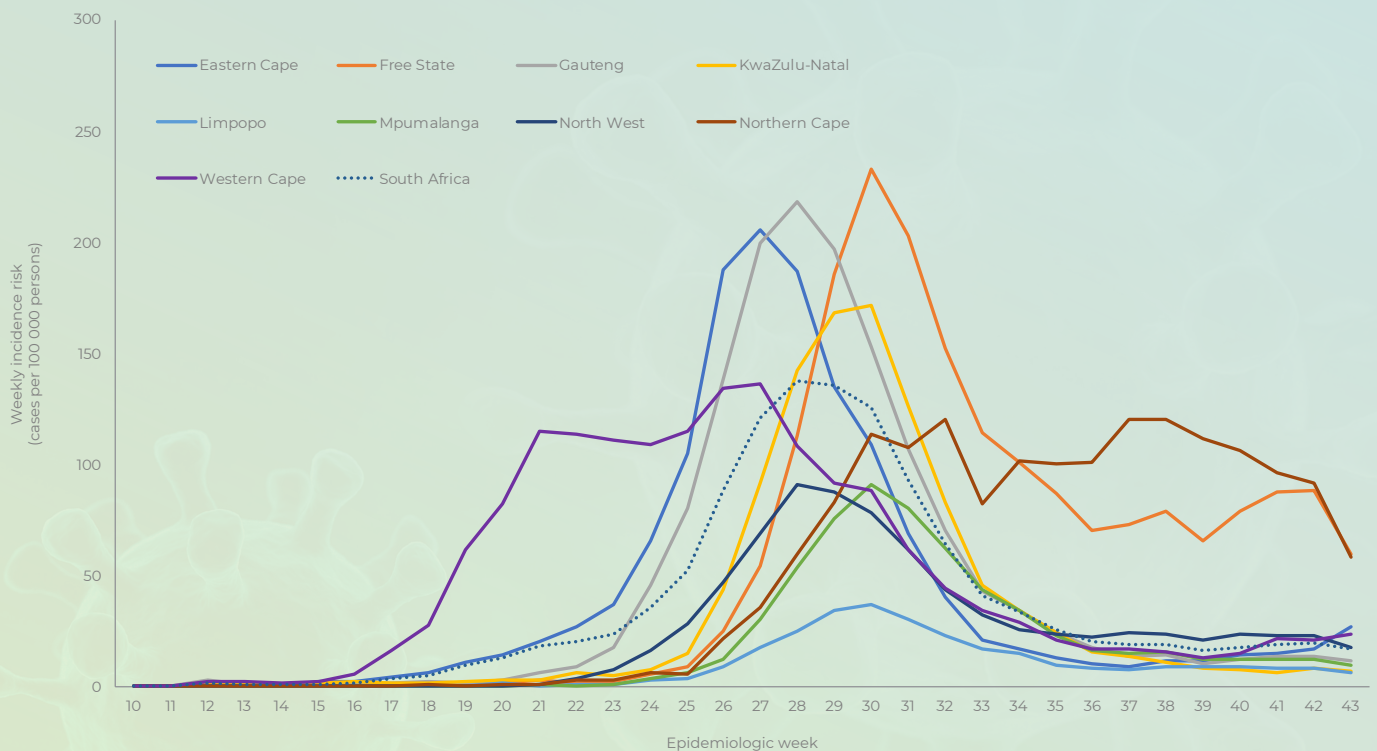
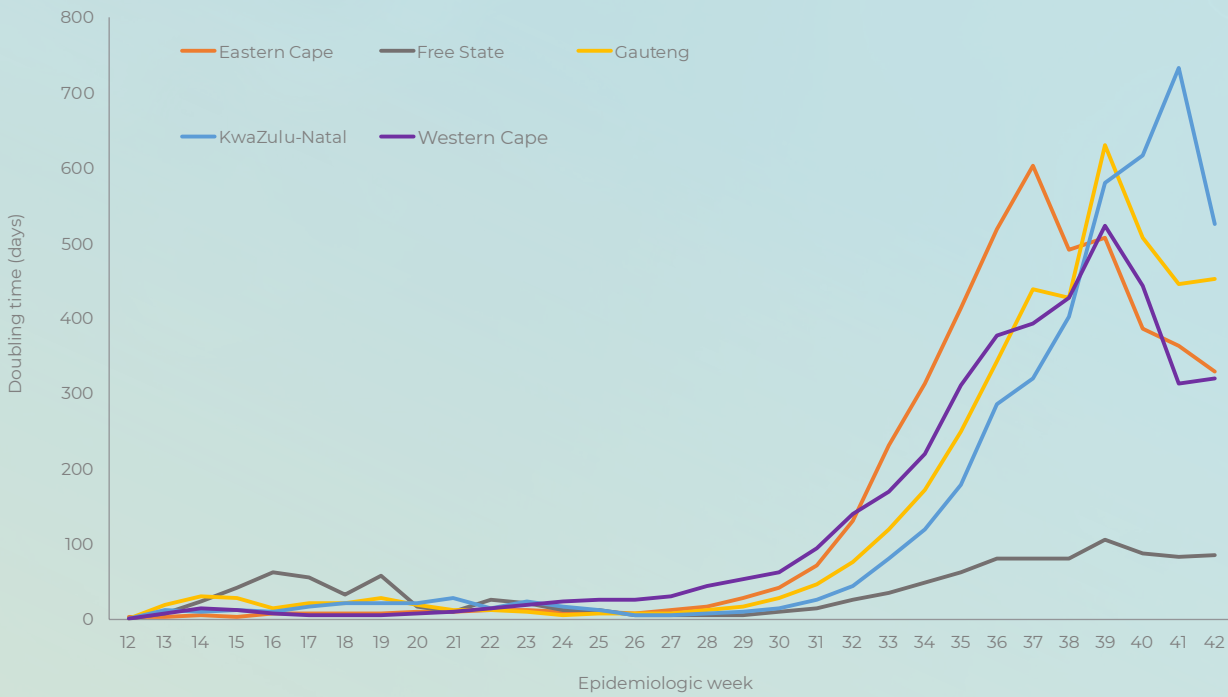


Figure 5. Doubling time of number of PCR-confirmed cases of COVID-19 by province (for 5 provinces with the majority of cases) and epidemiologic week, South Africa, 23 March-17 October 2020 (n=615 214)



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

Cases of COVID-19 were reported across all age groups. The median age of COVID-19 cases in South Africa to date was 39 years with an interquartile range (IQR) of 29-52 years. The distribution of cases varied by age, with highest number of all cases to date in the 35-39-year (89 728/710 390, 12.6%) and 30-34-year (88 073/710 390, 12.4%) age groups (Figure 6). Similarly, among the cases reported in the past week, the highest number of cases was in the 30-34-year age group (1 087/9 935, 10.9%) followed by the 35-39-year age group (1 035/9 935, 10.4%). The median age for cases reported in week 43 was the same (39 years, IQR 27-52), to that of total cases (39 years). The highest cumulative incidence risk remained among cases aged 50-54 years (2 454.0 cases per 100 000 persons), followed by 55-59 years (2 331.4 cases per 100 000 persons) and 45-49 years (2 255.9 cases per 100 000 persons). The lowest cumulative incidence risk was reported in the younger age-groups, 147.6 cases per 100 000 persons and 178.5 cases per 100 000 persons in the 0-4- and 5-9-year age groups respectively (Figure 7 and Table 2). The highest weekly incidence risk among cases detected in week 43 was reported in cases aged, 55-59 years (33.2 cases per 100 000 persons), followed by cases in the 50-54-year age group (32.3 cases per 100 000 persons) and the lowest weekly incidence risk was in

the 0-4-year age group (2.2 cases per 100 000 persons). To date, the majority of COVID-19 cases reported were female (58.2%, 413 273/ 709 664). This trend continued in the past week where 57.6%, (5 716/9 925) of cases were female. The cumulative incidence risk has remained consistently higher among females (1345.8 cases per 100 000 persons) than among males (1010.5 cases per 100 000 persons) (Figure 8). The peak cumulative incidence risk was in the same age group in both males and females; 50-54 years (2589.2 cases per 100 000 persons in females and 2266.4 cases per 100 000 persons in males) (Figure 9). In week 43, the highest incidence risk for males was in individuals aged 50-54 and 55-59 years (33.2 and 33.1 cases per 100 000 persons, respectively) and females in the 55-59-year age group (33.0 cases per 100 000 persons). The high prevalence and incidence risk among females could be explained by the fact that females are likely to be more represented in occupations which put them in close proximity to others and thus exposing them to a higher risk of infection (e.g. teaching and health). This may also be partly explained by varying testing practices by age and sex (data not shown) and by different health seeking behaviour.

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Figure 6. Number of laboratory-confirmed cases of COVID-19 by age group and sex, South Africa, 3 March-24 October 2020 (n=709 664, sex/age missing for 6 204)

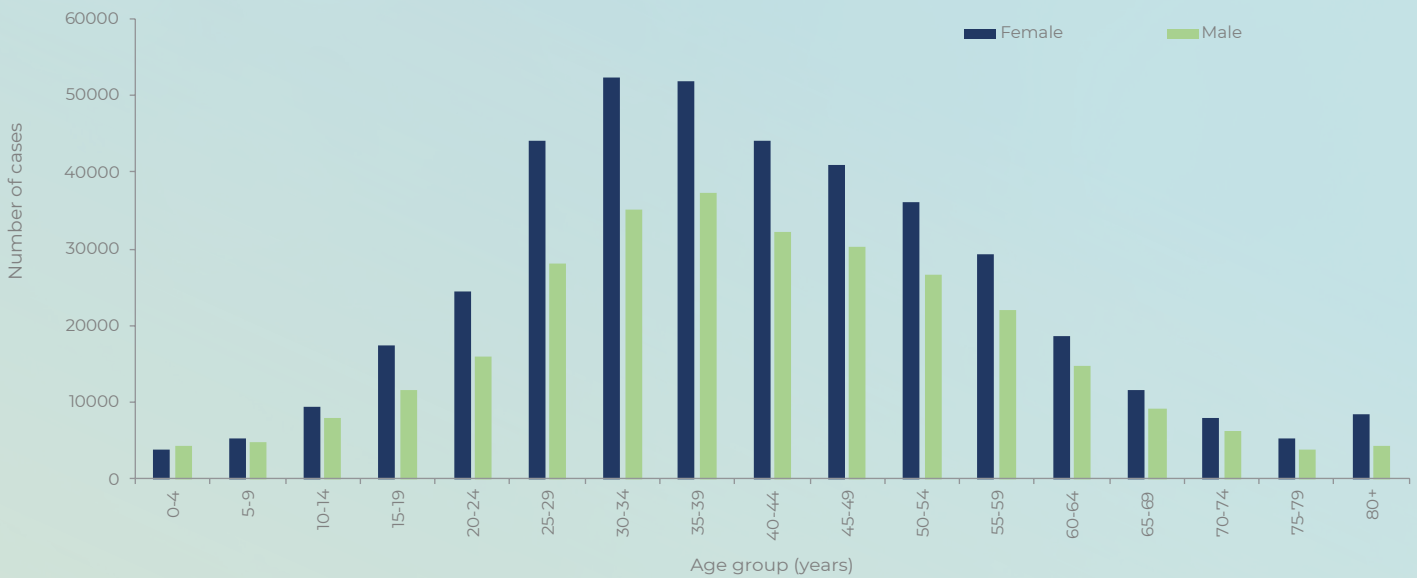
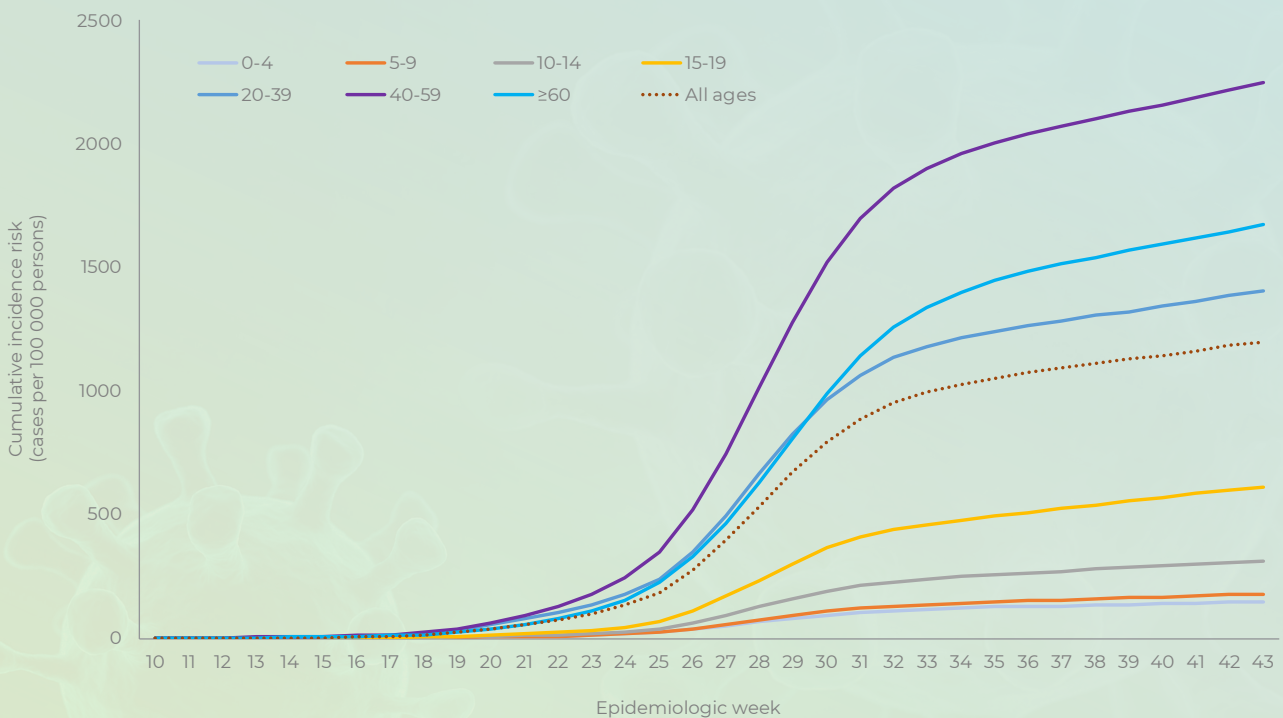


Figure 7. Cumulative incidence risk of PCR-confirmed cases of COVID-19 by age group in years and epidemiologic week, South Africa, 3 March-24 October 2020 (n=710 390, 5 478 missing age)



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Figure 8. Cumulative incidence risk by sex and epidemiologic week, South Africa, 3 March-24 October 2020 (n=709 664 sex missing for 5 643)

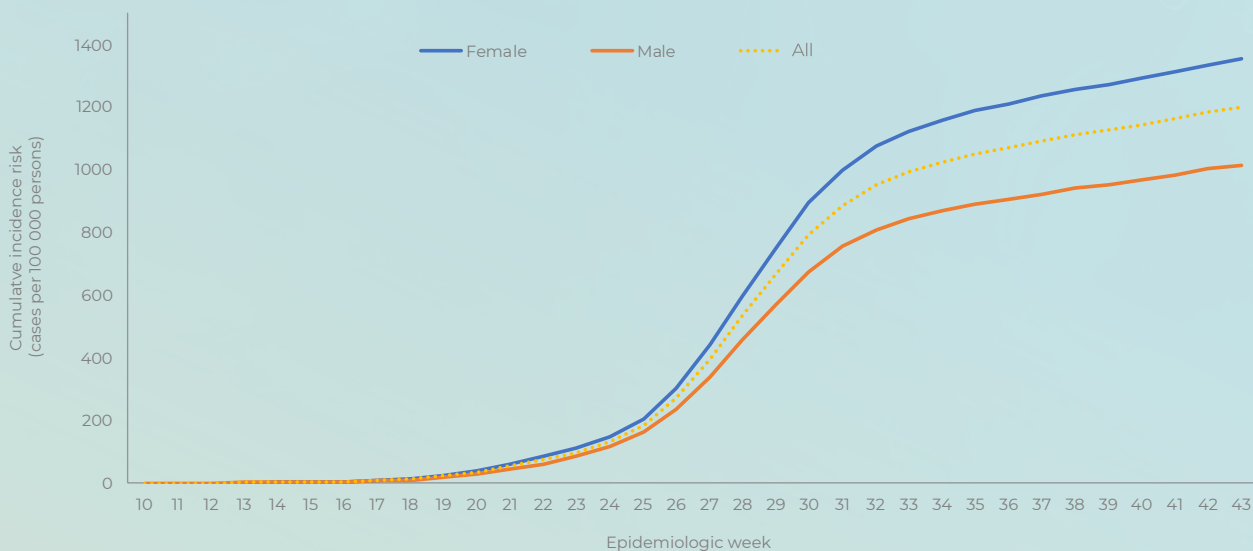
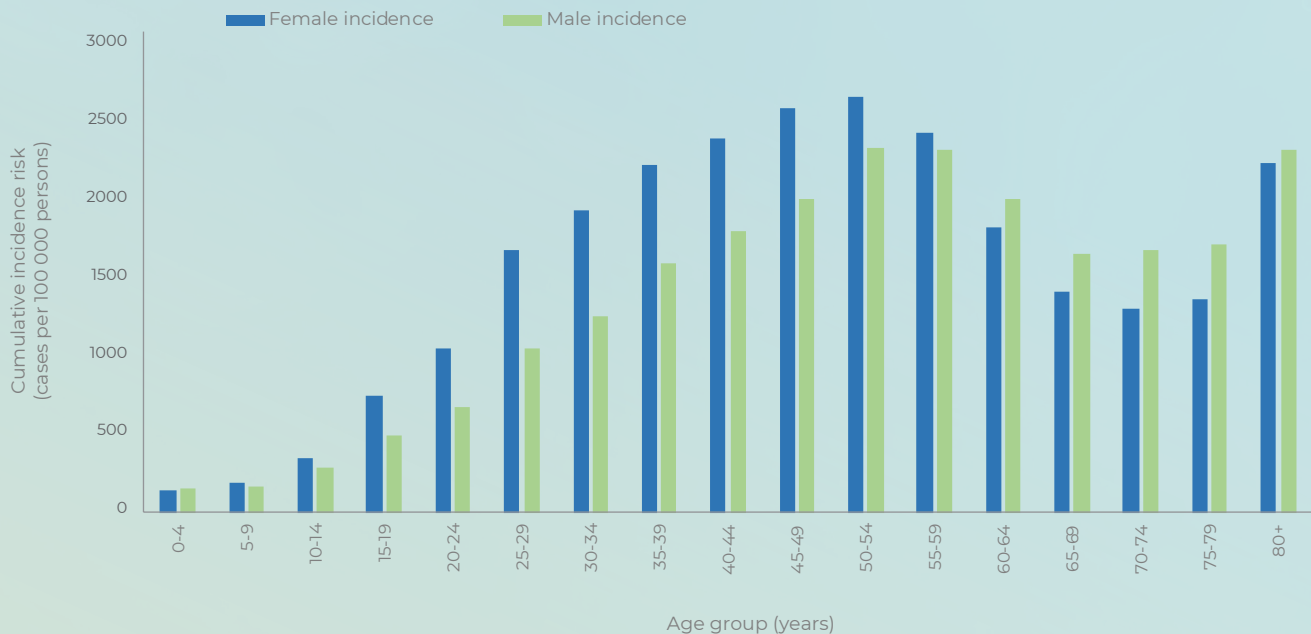


Table 2. Number of laboratory-confirmed cases of COVID-19 and cumulative/weekly incidence risk by age group, South Africa, 3 March-24 October 2020, n= 715 868

Age group (years)	Cumulative cases (n) (percentage, n/total cases in South Africa)	New cases ¹ detected in 43 (18-24 October 2020), n (percentage ² , n/total)	Population in mid-2020 ³ , n	Cumulative incidence risk (cases per 100 000 persons)	Incidence risk of new cases detected in week 43 (cases/100 000 persons)
0-4	8 480 (1.2)	125 (1.3)	5743 450	147.6	2.2
5-9	10 203 (1.4)	173 (1.7)	5715 952	178.5	3.0
10-14	17 533 (2.5)	287 (2.9)	5591 553	313.6	5.1
15-19	29 255 (4.1)	553 (5.6)	4774 579	612.7	11.6
20-24	40 804 (5.7)	814 (8.2)	4823 367	846.0	16.9
25-29	72 656 (10.2)	997 (10.0)	5420 754	1340.3	18.4
30-34	88 073 (12.4)	1 087 (10.9)	5641 750	1561.1	19.3
35-39	89 728 (12.6)	1 035 (10.4)	4798 293	1870.0	21.6
40-44	76 774 (10.8)	996 (10.0)	3733 942	2056.1	26.7
45-49	71 503 (10.1)	895 (9.0)	3169 648	2255.9	28.2
50-54	63 100 (8.9)	830 (8.4)	2571 263	2454.0	32.3
55-59	51 555 (7.3)	734 (7.4)	2211 309	2331.4	33.2
60-64	33 489 (4.7)	521 (5.2)	1796 316	1864.3	29.0
65-69	20 800 (2.9)	329 (3.3)	1408 665	1476.6	23.4
70-74	14 274 (2.0)	242 (2.4)	1007 174	1417.2	24.0
75-79	9 337 (1.3)	147 (1.5)	637 062	1465.6	23.1
≥80	12 826 (1.8)	170 (1.7)	577 273	2221.8	29.4
Unknown	5 478	80			
Total	715 868	10 015	59 622 350	1200.7	16.8

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); ³2020 Mid-year population Statistics South Africa

Figure 9. Cumulative incidence risk by age group and sex, South Africa, 3 March-24 October 2020 (n= 709 664, sex/age missing for 6 204)



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, 715 868 cases, including 18 968 deaths have been reported. The weekly incidence risk of cases per 100 000 persons continued to decrease compared to the preceding week, except for Eastern Cape and Western Cape provinces which reported a slight increase. The sustained decline in number of cases and weekly incidence risk may reflect a true slowing down of viral transmission, however the decreased doubling time of number of cases reported from two of the five provinces which contribute the majority of cases may indicate continued viral transmission within provinces. In addition, changes in testing practices and/or access to testing could also contribute to changes in numbers of confirmed cases.