

COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

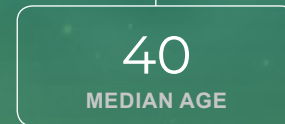
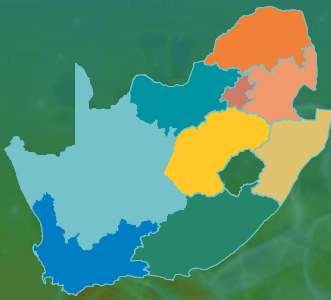


NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

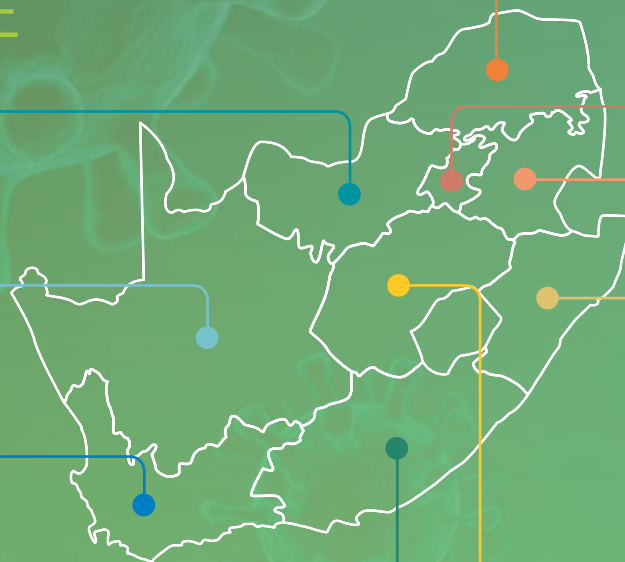
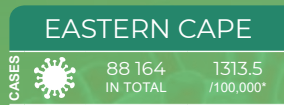
Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 38 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 19 September 2020 (week 38 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 19 September 2020, a total of 661 211 laboratory-confirmed COVID-19 cases had been detected in South Africa. Of these, 11 418 were cases reported since the last report. There was a 12.0% decrease in number of new cases detected in week 38 (9 902) compared to the number of new cases detected in week 37 (11 254)
- An additional 506 deaths were reported since the last report. The overall case-fatality ratio was 2.4% (15 953/661 211)
- To date, five provinces, Gauteng (217 370/661 211, 32.9%), KwaZulu-Natal (117 743/661 211, 17.8%), Western Cape (109 507/661 211, 16.6%), Eastern Cape (88 164/661 211, 13.3%) and Free State (44 037/661 211, 6.7%) continued to report the majority (576 821/661 211, 87.2%) of total COVID-19 cases in South Africa
- In the past week, Gauteng Province reported the highest number of new cases (1 980/9 902, 20.0%), followed by Free State Province (1 881/9 902, 19.0%), and Northern Cape Province (1 243/9 902, 12.6%)
- In the previous week, six provinces reported cumulative incidence risk above 1000 cases per 100 000 persons; Western Cape Province continued to report the highest cumulative incidence risk (1 600.0 cases per 100 000 persons), followed by Free State Province (1 525.1 cases per 100 000 persons), Gauteng Province (1 432.3 cases per 100 000 persons), Eastern Cape Province (1 313.5 cases per 100 000 persons), Northern Cape Province (1 189.8 cases per 100 000 persons), and lastly KwaZulu-Natal Province (1 043.0 cases per 100 000 persons)
- In the past week seven provinces reported a decline in weekly incidence risk which varied in magnitude by province, reduction ranged from 23 cases per 100 000 persons in Northern Cape Province to 1 case per 100 000 persons in Gauteng and Mpumalanga Provinces, respectively, compared to week 37
- Similar to the trend in the past three weeks, in the past week, Northern Cape Province (98 cases per 100 000 persons) followed by Free State Province (65 cases per 100 000 persons) and North West Province (22 cases per 100 000 persons) reported the highest weekly incidence risk. The weekly incidence risk in all the other provinces remained below 20 cases per 100 000 persons
- Similar to the previous weeks, among cases detected in week 38, the highest weekly incidence risk was in cases aged ≥80 years (34.5 cases per 100 000 persons) followed by cases in the 50-54-year age group (29.9 cases per 100 000 persons) and the lowest weekly incidence risk was in the 0-4-year age group (2.4 cases per 100 000 persons)
- To date, the majority of COVID-19 cases reported were female (58.3% (382 138/655 505)). This trend continued in the past week, (57.5% (5 635/ 9 805) of cases were female

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 19 September 2020, a total of 661 211 laboratory-confirmed COVID-19 cases were reported in South Africa. This is 11 418 more cases than the number reported in the last report. The number of new cases detected in week 38 (9 902) was lower than the number of new cases detected in week 37 (11 254), this represented a 12.0% decrease compared to the previous week.

Similar to the trend in the past few weeks, in the past week, Gauteng Province reported the highest percentage of new cases (1 980/9 902, 20.0%), followed by Free State Province (1 881/9 902, 19.0%), and Northern Cape (1 243/9 902, 12.6%), which replaced KwaZulu-

Natal (1 113/9 902, 11.2%) as the province with third highest percentage compared to week 37 (Table 1). Five provinces, Gauteng (217 370/ 661 211, 32.9%), followed by KwaZulu-Natal (117 743/661 211, 17.8%), Western Cape (109 507/661 211, 16.6%), Eastern Cape (88 164/6461 211, 13.3%) and Free State (44 037/661 211, 6.7%) provinces continued to contribute the majority (576 821/661 211, 87.2%) of total COVID-19 cases in South Africa. In keeping with the data reported in the past four weeks, there was minimal change in percent contribution of cases in the different provinces from week 37 to week 38.

The cumulative incidence risk for the country increased from 1 108.0 cases per 100 000 persons in week 37 to 1 125.0 cases per 100 000 persons in week 38. The cumulative incidence risk varied by province over time (Figure 3). This is partly explained by testing differences by province (Table 1).

The Western Cape Province had the highest cumulative incidence risk (1 600.0 cases per 100 000 persons) followed by Free State Province (1 525.1 cases per 100 000 persons), Gauteng Province (1 432.3 cases per 100 000 persons), Eastern Cape Province (1 313.5 cases per 100 000 persons), Northern Cape Province (1 189.8 cases per 100 000 persons) and KwaZulu-Natal Province (1 043.0 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 (245.8 cases per 100 000).

Similar to the past four weeks, in the past week, Northern Cape Province (98.3 cases per 100 000 persons) followed by Free State Province (65.1 cases per 100 000) and North West Province (21.9 cases per 100 000 persons) reported the highest weekly incidence risk.

The weekly incidence risk in the rest of the provinces remained below 20 cases per 100 000 persons. In the past week, seven provinces reported a decline in weekly incidence risk which varied in magnitude by province, reduction ranged from 23 cases per 100 000 persons (19% reduction) in Northern Cape Province to 1 case

per 100 000 persons (7.5% reduction) in Gauteng and Mpumalanga Provinces respectively, compared to week 37. The Eastern Cape Province and Limpopo Province reported an increase in the weekly incidence risk of 1 case per 100 000 persons each in the past week (Figure 4). To date, the weekly incidence risk peaked at different levels and weeks for the different provinces, Western Cape Province peaked earlier in week 27 (206 cases per 100 000 persons) and Northern Cape Province peaked last in week 32 (123 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, with Eastern Cape Province reporting the longest doubling time in week 37 (Figure 5). In week 37, the estimated doubling time of number of cases decreased from 82.4 days in week 36 to 80.5 days in week 37 in Free State, and continued to increase for the other four provinces, increased to 604.3 days in Eastern Cape Province, 441.1 days in Gauteng Province, 393.5 days in Western Cape Province, and 321.0 days in KwaZulu-Natal Province. The Gauteng Province replaced Western Cape Province as the province with the second highest doubling time.

The case-fatality ratio was 2.4% (15 953/661 211); an additional 506 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, 506 compared to 558. 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.

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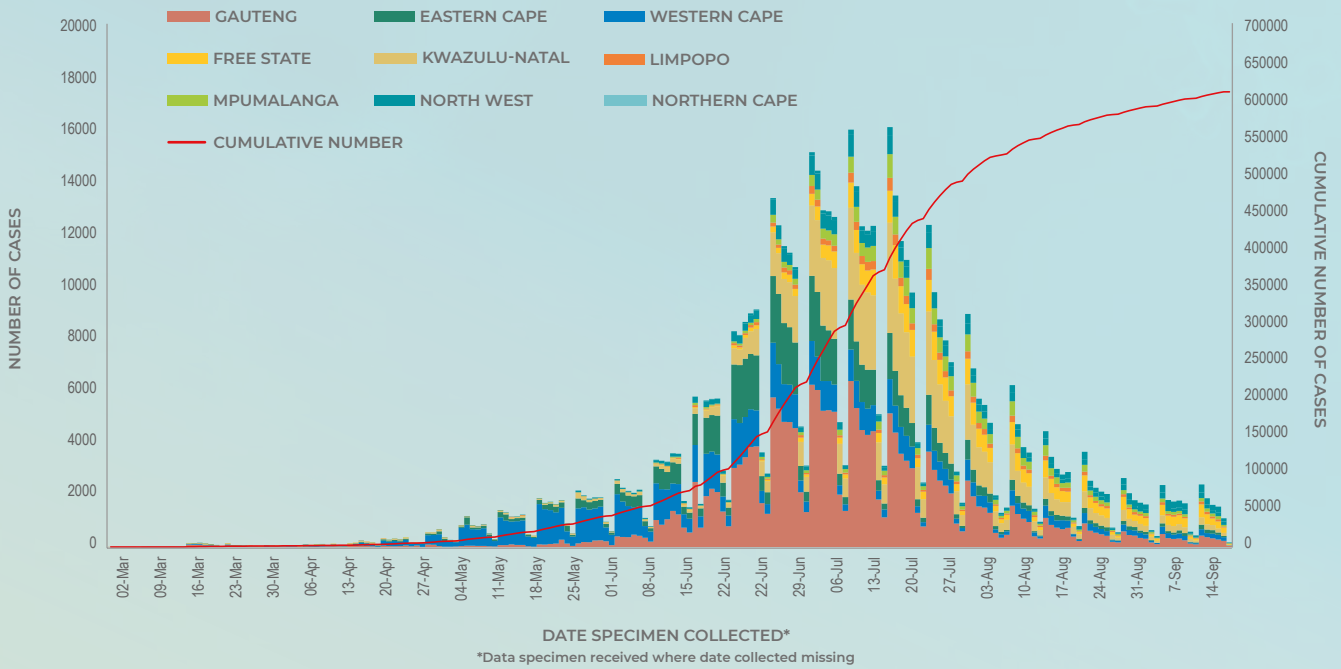


Figure 1. Number and cumulative number of laboratory-confirmed cases of COVID-19 by province and date of specimen collection, South Africa, 3 March-19 September 2020 (n=661 211)

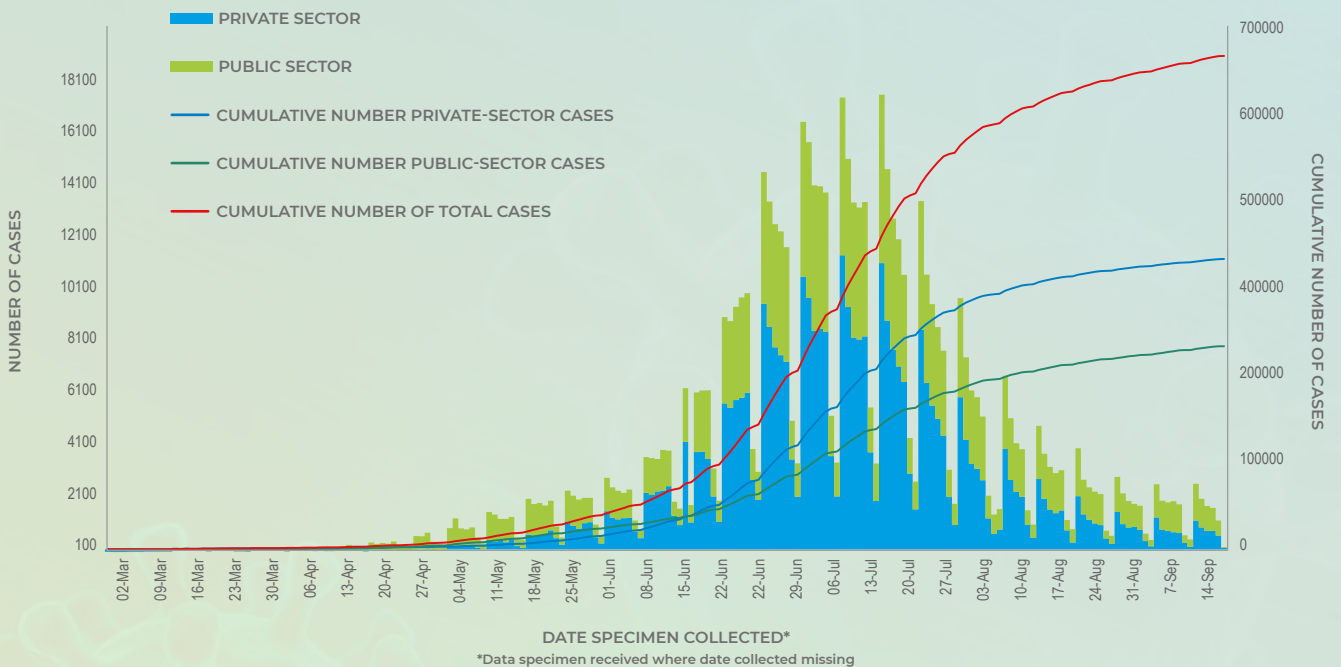


Figure 2. Number and cumulative number of laboratory-confirmed cases of COVID-19, by testing laboratory sector and date of specimen collection, South Africa, 3 March-19 September 2020 (n=661 211)

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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-19 September 2020 (n=661 211)

Province	Cumulative cases (n) (percentage, n/total cases in South Africa)	New cases ¹ detected in week 38 (13-19 September), n (percentage ² , n/total) ³	Population in mid-2019 ³ , n	Cumulative incidence risk (cases per 100 000 persons)	Incidence risk of new cases detected in week 38 (cases/100 000 persons)	Tests ⁴ per 100 000 persons, 13-19 September 2020
Eastern Cape	88 164 (13.3)	669 (6.8)	6 712 276	1313.5	10.0	108.4
Free State	44 037 (6.7)	1 881 (19.0)	2 887 465	1525.1	65.1	303.0
Gauteng	217 370 (32.9)	1 980 (20.0)	15 176 115	1432.3	13.0	189.2
KwaZulu-Natal	117 743 (17.8)	1 113 (11.2)	11 289 086	1043.0	9.9	148.4
Limpopo	14 703 (2.2)	472 (4.8)	5 982 584	245.8	7.9	47.1
Mpumalanga	26 479 (4.0)	634 (6.4)	4 592 187	576.6	13.8	106.2
North West	28 171 (4.3)	881 (8.9)	4 027 160	699.5	21.9	105.3
Northern Cape	15 037 (2.3)	1 243 (12.6)	1 263 875	1189.8	98.3	392.8
Western Cape	109 507 (16.6)	1 029 (10.4)	6 844 272	1600.0	15.0	212.8
Unknown	0	0	-	-	-	-
Total	661 211	9 902	58 775 020	1125.0	16.8	158.1

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

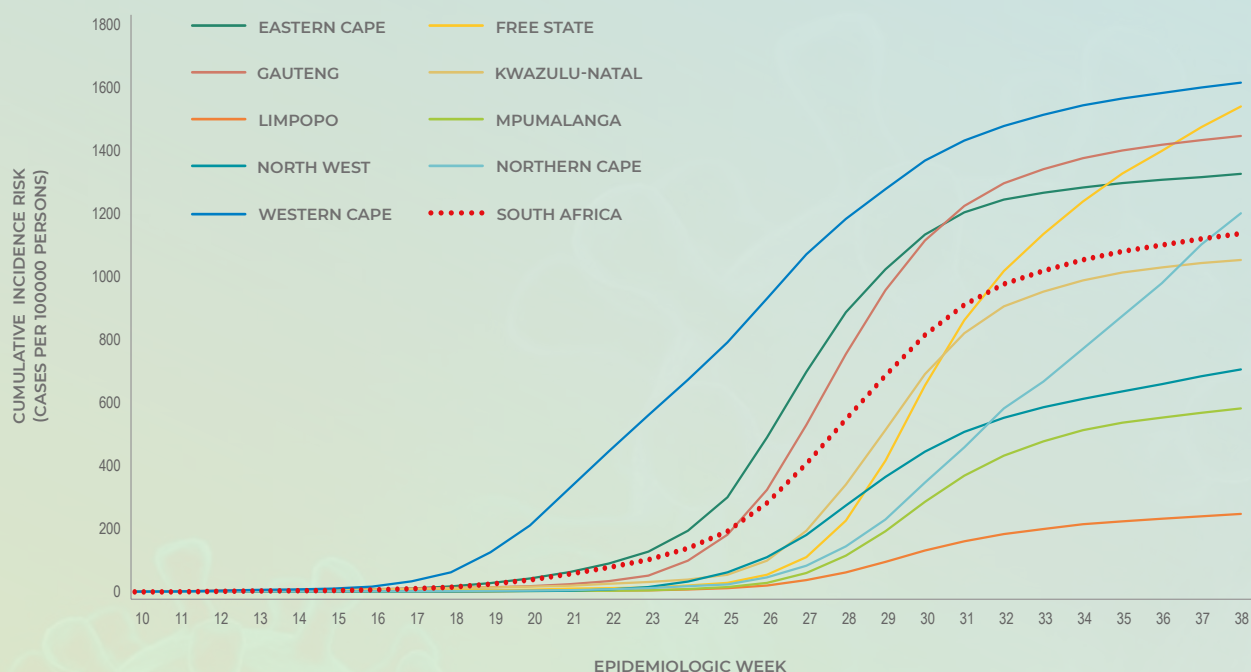


Figure 3. Cumulative incidence risk of PCR-confirmed cases of COVID-19 by province and epidemiologic week, South Africa, 3 March-19 September 2020 (n=661 211)

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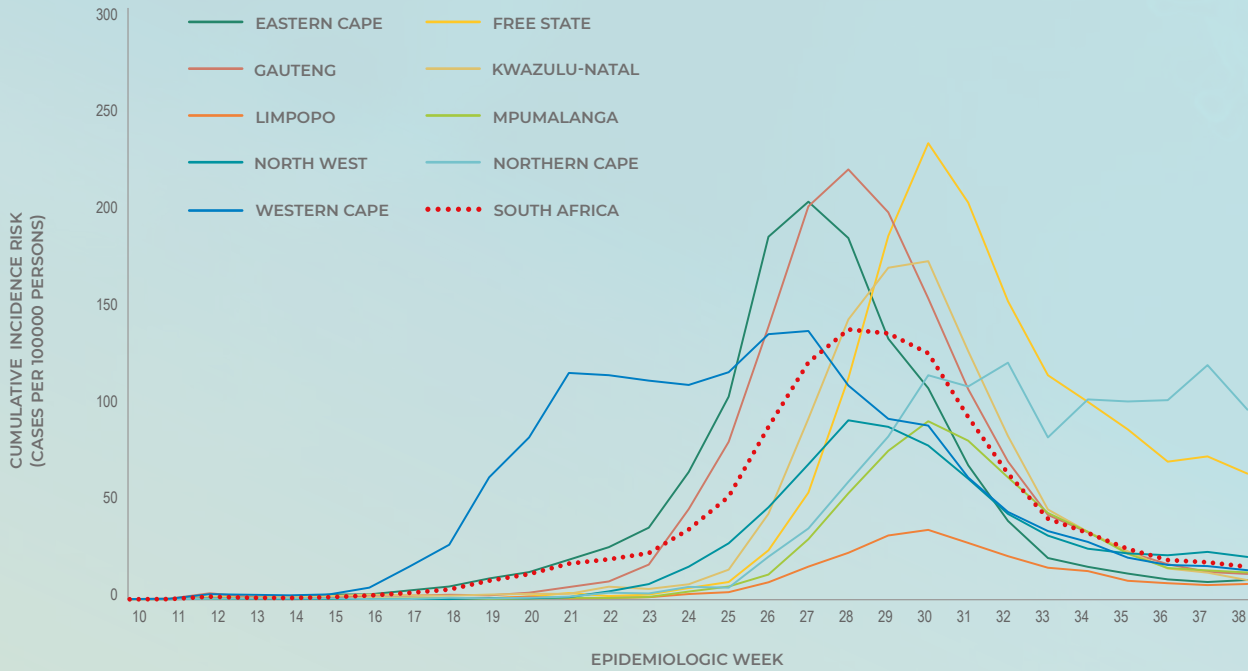


Figure 4. Weekly incidence risk of PCR-confirmed cases of COVID-19 by province and epidemiological week, South Africa, 3 March-19 September 2020 (n=661 211)

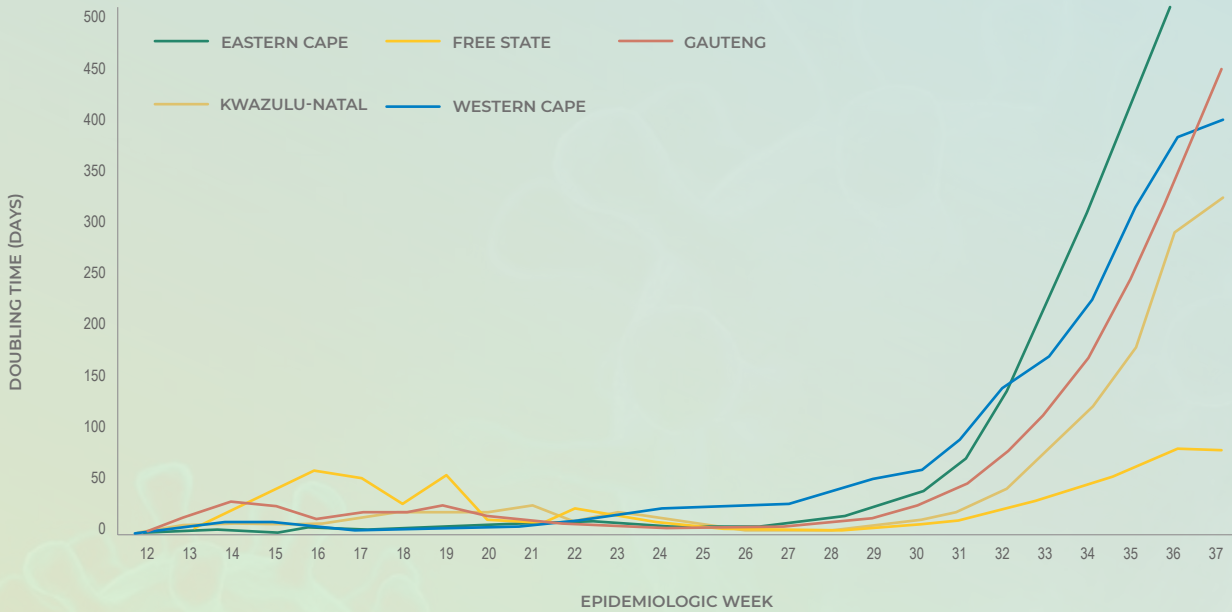


Figure 5. Doubling time of number of PCR-confirmed cases of COVID-19 by province (for 5 provinces with the majority of cases) and epidemiological week, South Africa, 23 March-12 September 2020 (n=576 821)

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

Cases of COVID-19 were reported across all age groups. The median age of COVID-19 cases in South Africa to date was 40 years with an interquartile range (IQR) of 30-52 years. The distribution of cases varied by age, with highest number of all cases to date in the 35-39-year (83 792/656 197, 12.8%) and 30-34-year (81 949/656 197, 12.5%) age group respectively (Figure 6). Similarly, among the cases reported in the past week, the highest number of cases was in the 30-34-year age group (1 137/9 796, 11.6%) followed by the 35-39-year age group (1 089/9 796, 11.1%). The median age for cases reported in week 38 was similar (38 years, IQR 27-51), to that of total cases (40 years).

The highest cumulative incidence risk remained among cases aged 50-54 years (2 318.6 cases per 100 000 persons) and the lowest cumulative incidence risk was reported in the younger age-groups, 135.0 cases per 100 000 persons and 158.6 cases per 100 000 persons in the 0-4- and 5-9-year age groups respectively (Figure 7 and Table 2). Similar to the previous weeks, among cases detected in week 38, the highest weekly incidence risk was in cases aged ≥ 80 years (34.5 cases per 100 000 persons) followed by cases in the 50-54-year age group (29.9 cases per 100 000 persons) and

the lowest weekly incidence risk was in the 0-4-year age group (2.4 cases per 100 000 persons). To date, the majority of COVID-19 cases reported were female (58.3%, 382 138/655 505). This trend continued in the past week where 57.5% (5 635/9 805) of cases were female. The cumulative incidence risk has remained consistently higher among females (1260.6 cases per 100 000 persons) than among males (947.0 cases per 100 000 persons) (Figure 7). However, this varied by age group with the peak cumulative incidence risk among females aged 45-49 years (2 400.1 cases per 100 000 persons) and males aged 50-54 years (2 197.9 cases per 100 000 persons) (Figure 8 and Figure 9).

In week 38, the highest incidence risk for both males (35.7 cases per 100 000 persons) and females (32.8 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 (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.

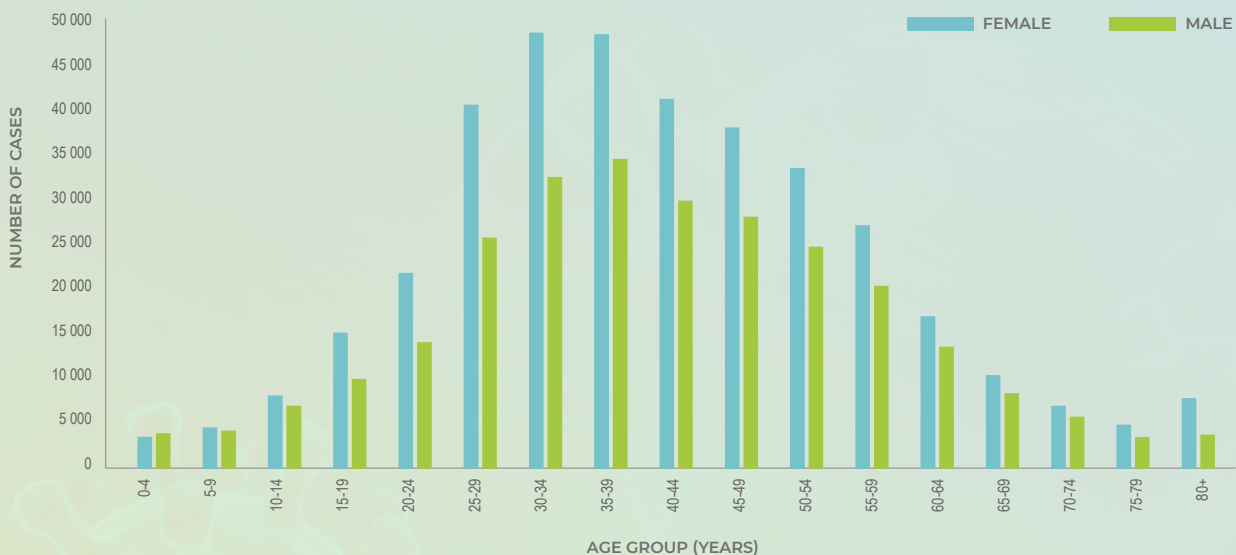


Figure 6. Number of laboratory-confirmed cases of COVID-19 by age group and sex, South Africa, 3 March-19 September 2020 (n=656 197, sex/age missing for 5 014)

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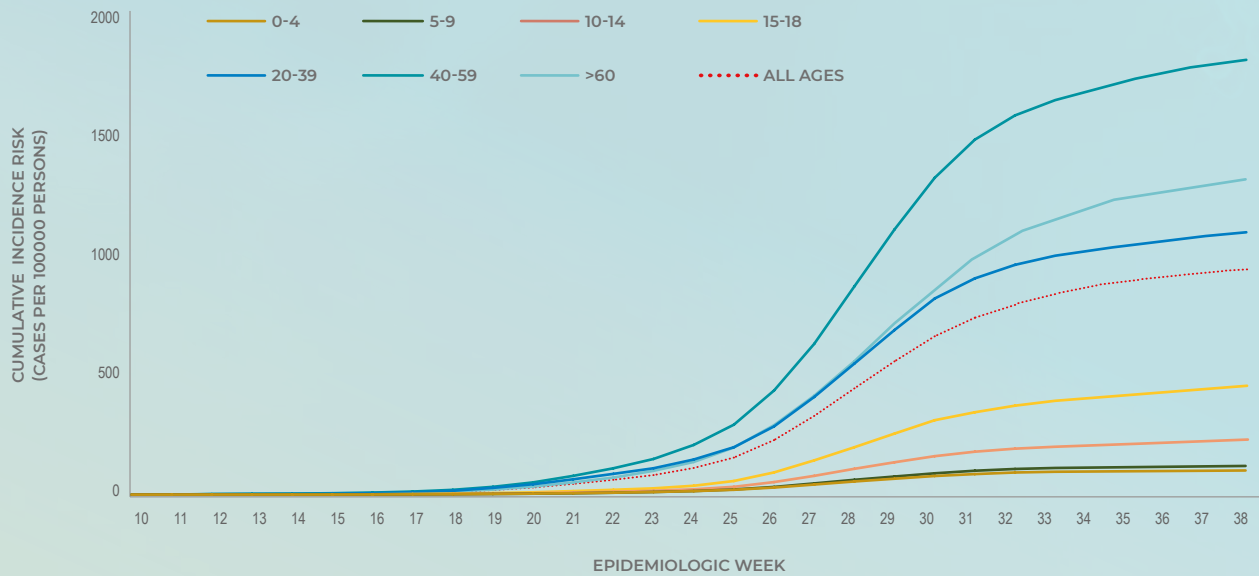


Figure 7 Cumulative incidence risk of PCR-confirmed cases of COVID-19 by age group in years and epidemiologic week, South Africa, 3 March-19 September 2020 (n= 656 197, 5 014 missing age group)

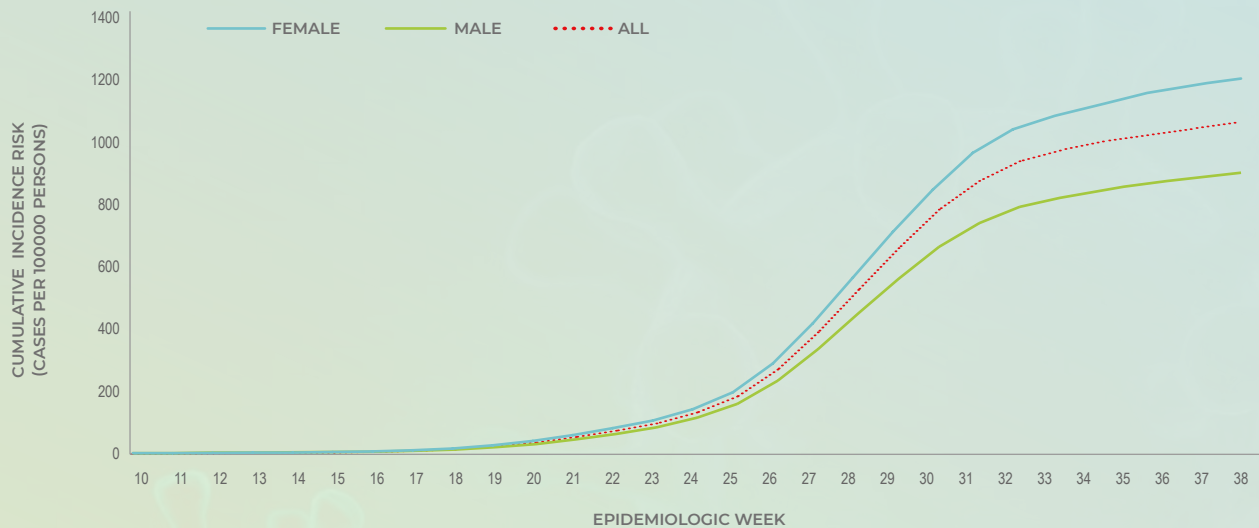


Figure 8. Cumulative incidence risk by sex and epidemiological week, South Africa, 3 March-19 September 2020 (n=655 505 sex missing for 5 706)

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Table 2. Number of cases and cumulative/weekly incidence risk by age group, South Africa, 3 March-19 September 2020, n= 661 211

Age group (years)	Cumulative cases (n) (percentage, n/total cases in South Africa)	New cases ¹ detected in week 38 (13-19 September 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 38 (cases/100 000 persons)
0-4	7 738 (1.2)	135 (1.4)	5 733 946	135.0	2.4
5-9	9 100 (1.4)	224 (2.3)	5 737 439	158.6	3.9
10-14	15 597 (2.4)	380 (3.8)	5 427 902	287.3	7.0
15-19	25 700 (3.9)	663 (6.8)	4 660 002	551.5	14.2
20-24	36 478 (5.6)	649 (6.6)	4 914 186	742.3	13.2
25-29	67 085 (10.2)	986 (10.1)	5 528 571	1 213.4	17.8
30-34	81 949 (12.5)	1 137 (11.6)	5 537 963	1 479.8	20.5
35-39	83 792 (12.8)	1 089 (11.1)	4 571 175	1 833.1	23.8
40-44	71 778 (10.9)	939 (9.6)	3 585 408	2 001.9	26.2
45-49	66 737 (10.2)	857 (8.7)	3 045 617	2 191.2	28.1
50-54	58 778 (9.0)	759 (7.7)	2 535 048	2 318.6	29.9
55-59	48 010 (7.3)	606 (6.2)	2 192 512	2 189.7	27.6
60-64	30 971 (4.7)	452 (4.6)	1 784 476	1 735.6	25.3
65-69	19 073 (2.9)	319 (3.3)	1 370 121	1 392.1	23.3
70-74	13 016 (2.0)	223 (2.3)	949 812	1 370.4	23.5
75-79	8 546 (1.3)	170 (1.7)	597 874	1 429.4	28.4
≥80	11 849 (1.8)	208 (2.1)	602 969	1 965.1	34.5
Unknown	5 014	106			
Total	661 211	9 902	58 775 021	1 125.0	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) ³2019 Mid-year population Statistics South Africa

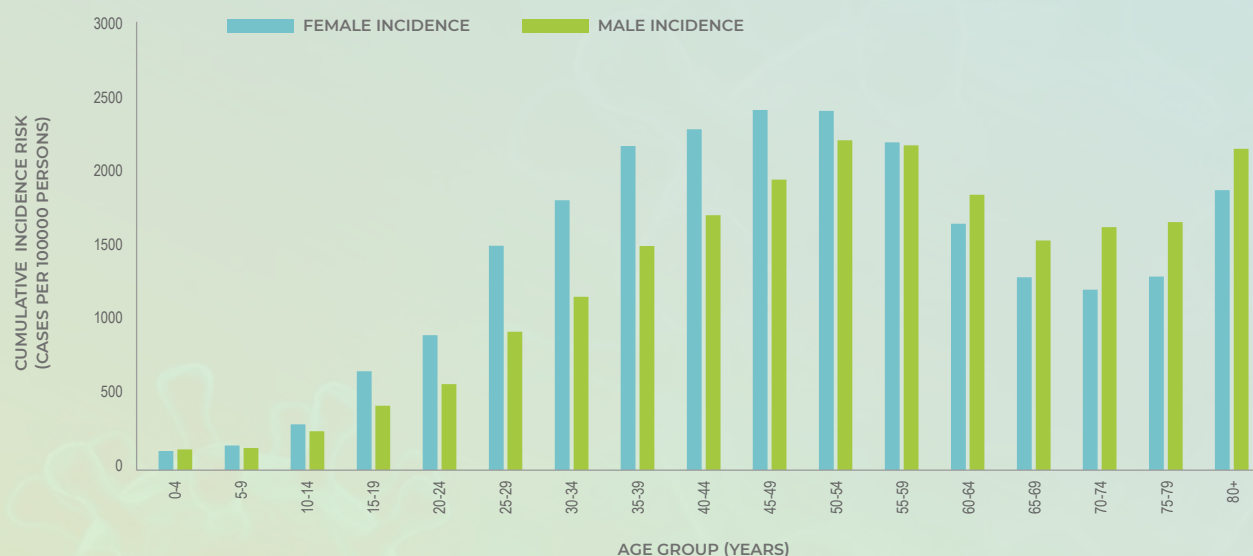


Figure 9. Cumulative incidence risk by age group and sex, South Africa, 3 March-19 September 2020 (n= 656 197, sex/age missing for 5 014)

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, 661 211 cases, including 15 953 deaths have been reported. Similar to the trend in the previous weeks, the weekly incidence risk of cases per 100 000 persons either remained unchanged or decreased compared to the preceding week, except for Eastern Cape and Limpopo provinces which reported a 7.5% increase each in weekly incidence risk compared to previous week.

Doubling time for number of new cases continued to increase week on week, except for Free State Province where doubling time decreased slightly, this may indicate an increase in transmission of COVID-19 infections or increased testing in the previous week.

The sustained decline in number of cases and weekly incidence risk together with prolonged doubling time of number of cases reported from the four of 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.