

COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

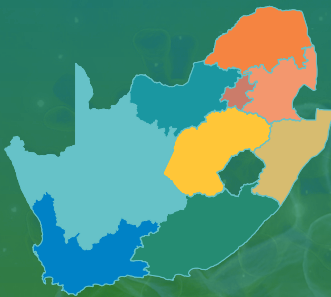


NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 36 2020

CUMULATIVE DATA FROM



CASES

638 517
IN TOTAL

10 586
THIS WEEK

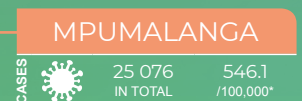
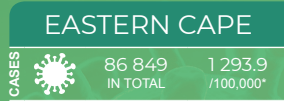


PERSONS

1 086.4
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 5 September 2020 (week 36 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 5 September 2020, a total of 638 517 laboratory-confirmed COVID-19 cases had been detected in South Africa. Of these, 13 461 were cases reported since the last report. The number of new cases detected in week 36 (10 586) was lower than the number of new cases detected in week 35 (15 325)
- An additional 861 deaths were reported since the last report. The overall case-fatality ratio was 2.3% (14 889/638 517)
- To date, five provinces, Gauteng (212 898/ 638 517, 33.3%), KwaZulu-Natal (114 824/638 517, 18.0%), Western Cape (107 187/638 517, 16.8%), Eastern Cape (86 849/638 517, 13.6%) and Free State (39 781/638 517, 6.2%) contributed the majority (561 539/638 517, 87.9%) of total COVID-19 cases in South Africa.
- In the past week, Gauteng Province reported the highest percentage of new cases (2 493/10 586, 23.5 %), followed by Free State Province (1 814/10 586, 17.1%), and KwaZulu-Natal Province (1 542/ 10 586,14.6%).
- The Western Cape Province had the highest cumulative incidence risk (1 566.1 cases per 100 000 persons) followed by Gauteng Province (1402.8 cases per 100 000 persons), Free State Province (1377.7 cases per 100 000 persons), Eastern Cape Province (1293.9 cases per 100 000 persons) and KwaZulu-Natal Province (1017.1 cases per 100 000 persons).
- In keeping with the trend in the previous two weeks, 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 Province reported the highest reduction in incidence risk compared to week 35 (decreased by 25 cases per 100 000 persons)
- In week 35, the estimated doubling time of number of cases continued to increase for all five provinces which contribute the majority of cases, increased to 415.1 days in Eastern Cape Province, 310.6 in Western Cape Province, 250.2 days in Gauteng Province, 179.1 days in KwaZulu-Natal Province, and 62.7 days in Free State Province
- Similar to the previous weeks, among cases detected in week 36, the highest weekly incidence risk was in cases aged ≥ 80 years (40.5 cases per 100 000 persons) followed by cases in the 50-54-year age group (34.9 cases per 100 000 persons) and the lowest weekly incidence risk was in the 0-4-year age group (2.6 cases per 100 000 persons)
- To date, the majority of COVID-19 cases reported were female (58.3%, 369 038/ 633 027). This trend continued in the past week, 57.7% (6 062/10 511) of cases were female

INCIDENCE
RISK FOR
WEEK 36

18.0
CASES PER
100 000
PERSONS

23.5%
OF CASES
REPORTED IN
GAUTENG IN
WEEK 36

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 5 September 2020, a total of 638 517 laboratory-confirmed COVID-19 cases were reported in South Africa. This is 13 461 more cases than the number reported in the last report. The number of new cases detected in week 36 (10 586) was lower than the number of new cases detected in week 35 (15 325). Similar to the trend in past few weeks, in the past week, Gauteng Province reported the highest percentage of new cases (2 493/10 586, 23.5 %), followed by Free State Province (1 814/10 586, 17.1%), and KwaZulu-Natal Province (1 542/ 10 586, 14.6%) (Table 1). Five provinces, Gauteng (212 898/ 638 517, 33.3%), followed by KwaZulu-Natal (114 824/638 517, 18.0%), Western Cape (107 187/638 517, 16.8%), Eastern Cape (86 849/638 517, 13.6%) and Free State (39 781/638 517, 6.2%) provinces continued to contribute the majority (561 539/638 517, 87.9%) of total COVID-19 cases in South Africa. In keeping with the data reported the previous week, there was minimal change in percent contribution of cases in the different provinces from week 35 to week 36.

The five provinces which contribute the majority of cases, all reported cumulative incidence risks greater than 1 000 cases per 100 000 persons, the Western Cape Province had the highest cumulative incidence risk (1 566.1 cases per 100 000 persons) followed by Gauteng Province (1402.8 cases per 100 000 persons), Free State Province (1 377.7 cases per 100 000 persons), Eastern Cape (1 293.9 cases per 100 000 persons) and KwaZulu-Natal Province (1 017.1 cases per 100 000 persons). All the other provinces had cumulative incidence risk below 1000 cases per 100 000 persons, with Limpopo Province remaining 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

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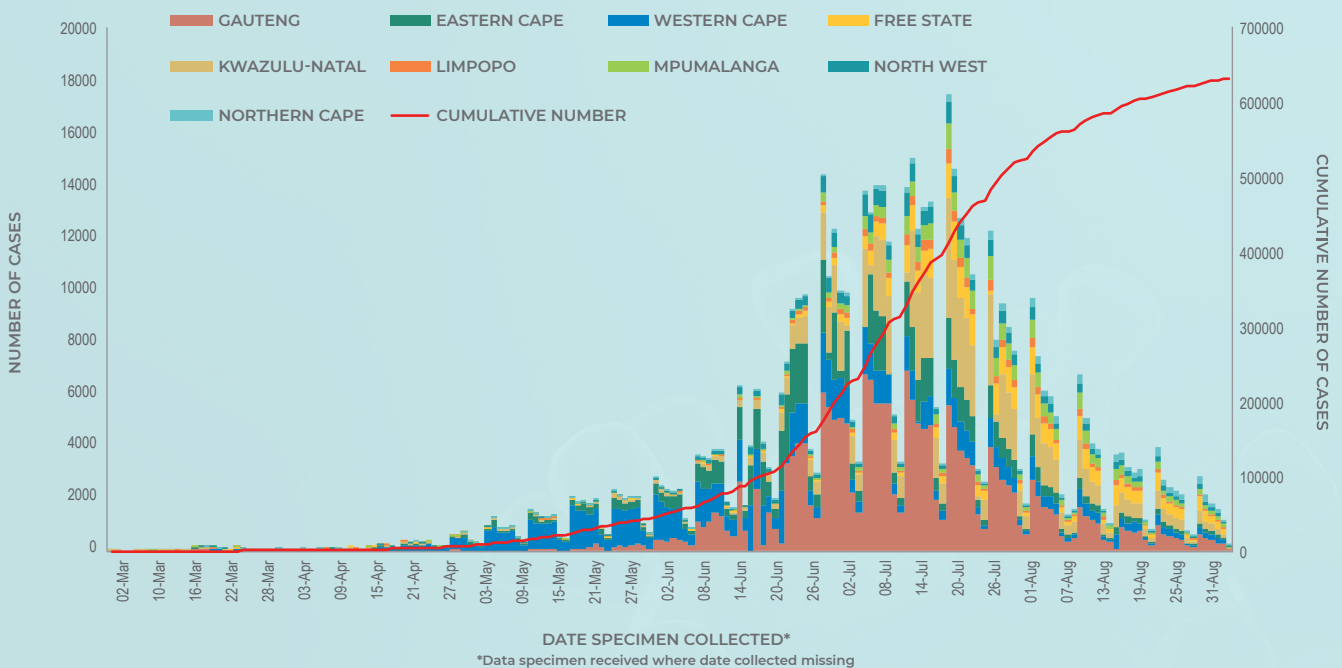
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from 1063.9 cases per 100 000 persons in week 35 to 1086.8 cases per 100 000 persons in week 36. The cumulative incidence risk varied by province over time (Figure 3). This is partly explained by testing differences by province (Table 1). In the past week, Northern Cape Province (77.3 cases per 100 000 persons) followed by Free State Province (62.8 cases per 100 000) reported the highest weekly incidence risk. In keeping with the trend in the previous two weeks, 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 Province reported the highest reduction compared to week 35 (decreased by 25 cases per 100 000 persons) (Figure 4). The lowest reduction in weekly incidence risk was reported in North West Province and Limpopo Province, decreased by 2 cases per 100 000 persons each. 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 35 (Figure 5). In week 35, the estimated doubling time of number of cases continued to increase for all five provinces, increased

to 415.1 days Eastern Cape Province, 310.6 in Western Cape Province, 250.2 days in Gauteng Province, 179.1 days in KwaZulu-Natal Province, and 62.7 days in Free State Province.

The case-fatality ratio was 2.3% (14 889/638 517); an additional 861 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, 861 compared to 969. 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-5 September 2020 (n=637 057, 1459 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-5 September 2020 (n=637 058,1 459 missing dates of specimen collection/sector allocation)

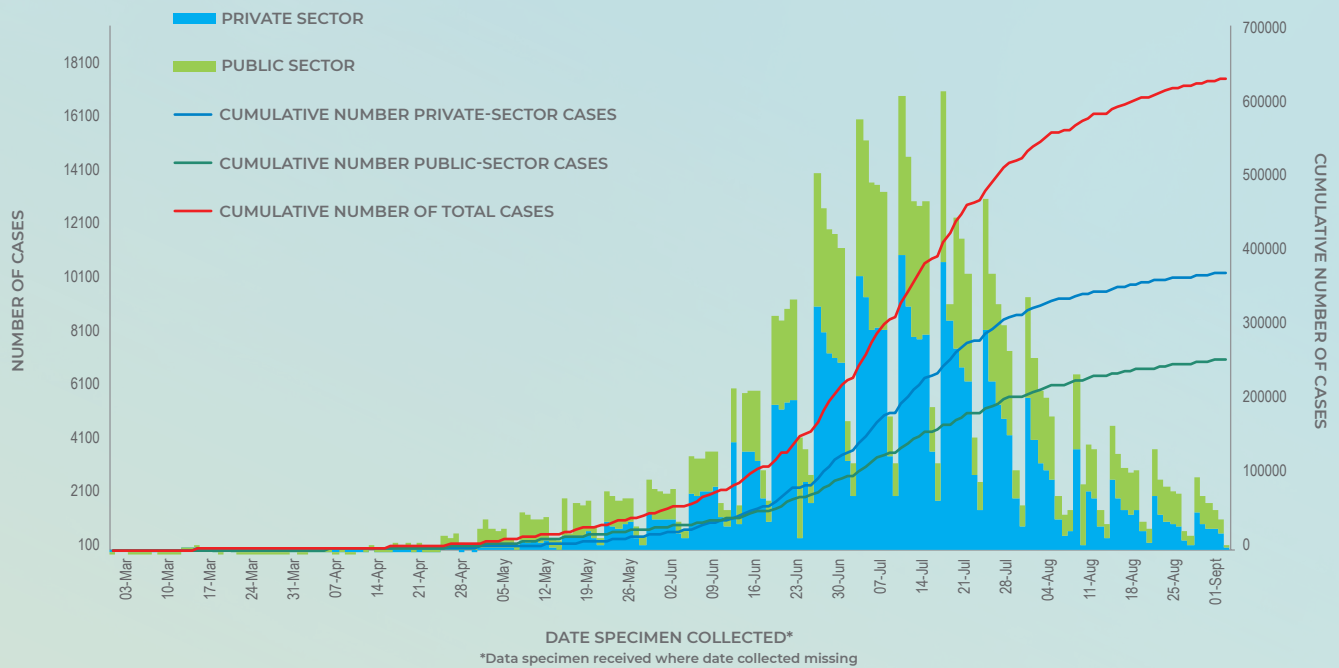


Table 1. Number and cumulative incidence risk of laboratory-confirmed cases of COVID-19 and testing per 100 000 persons by province, South Africa, 3 March-5 September 2020 (n=638 517)

Province	Cumulative cases (n) (percentage, n/total cases in South Africa)	New cases ¹ detected in week 36 (30 August-5 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 36 (cases/100 000 persons)	Tests ⁴ per 100 000 persons, 30 August-5 September 2020
Eastern Cape	86 849 (13.6)	639 (6.0)	6 712 276	1293.9	9.5	86.3
Free State	39 781 (6.2)	1 814 (17.1)	2 887 465	1377.7	62.8	282.3
Gauteng	212 898 (33.3)	2 493 (23.5)	15 176 115	1402.8	16.4	173.4
KwaZulu-Natal	114 824 (18.0)	1 542 (14.6)	11 289 086	1017.1	13.7	139.7
Limpopo	13 734 (2.2)	439 (4.1)	5 982 584	229.6	7.3	46.6
Mpumalanga	25 076 (3.9)	659 (6.2)	4 592 187	546.1	14.4	101.6
North West	26 245 (4.1)	873 (8.2)	4 027 160	651.7	21.7	102.5
Northern Cape	11 923 (1.9)	977 (9.2)	1 263 875	943.4	77.3	335.9
Western Cape	107 787 (16.9)	1 150 (10.9)	6 844 272	1566.1	16.8	197.2
Unknown	0	0	-	-	-	-
Total	638 517	10 586	58 775 020	1086.4	18.0	145.5

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; 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-5 September 2020 (n=638 437, 80 missing epidemiologic week)

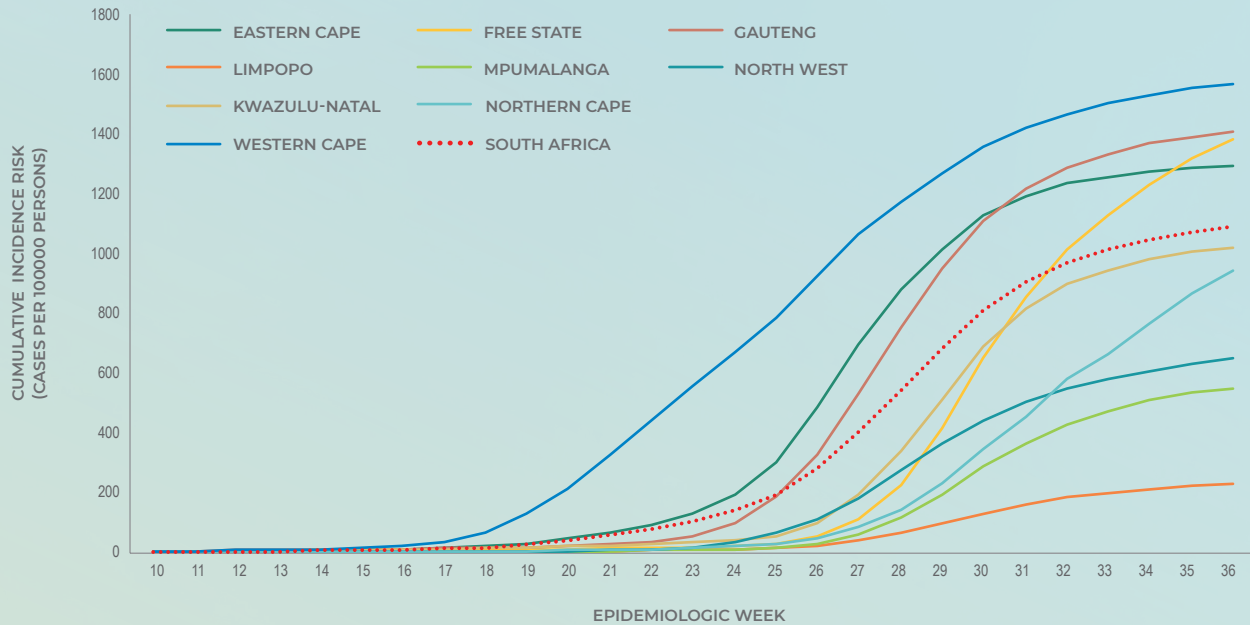


Figure 4. Weekly incidence risk of PCR-confirmed cases of COVID-19 by province and epidemiological week, South Africa, 3 March-5 September 2020 (n=638 437, 80 missing epidemiologic week)

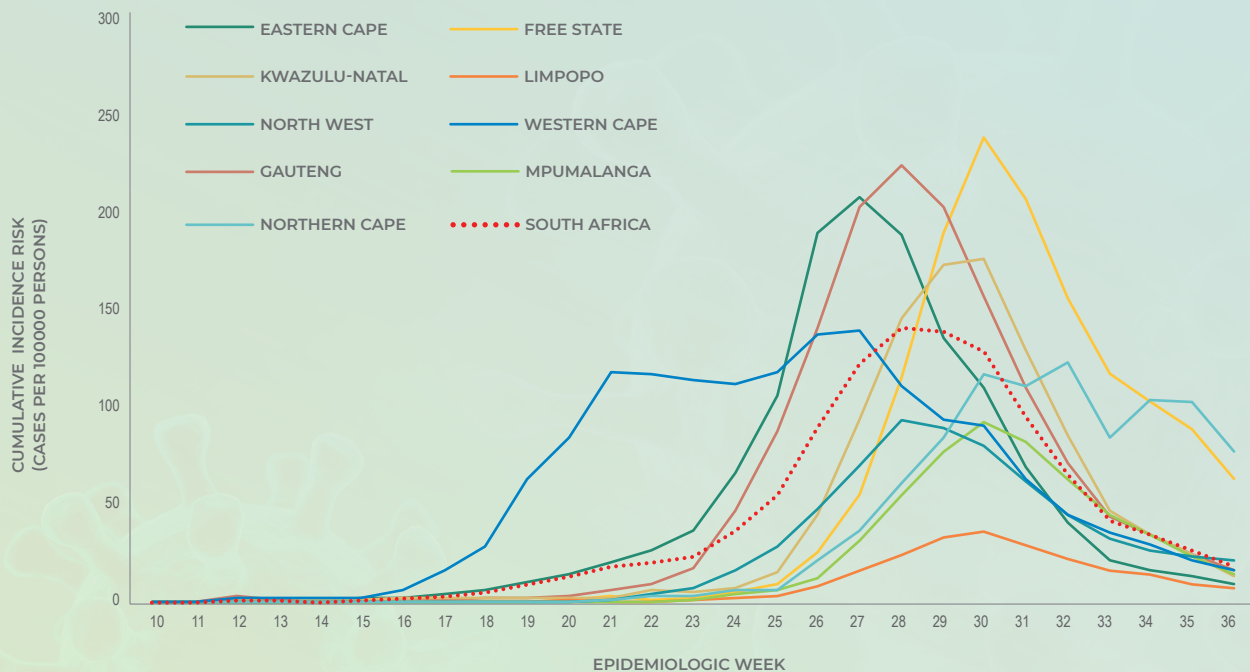
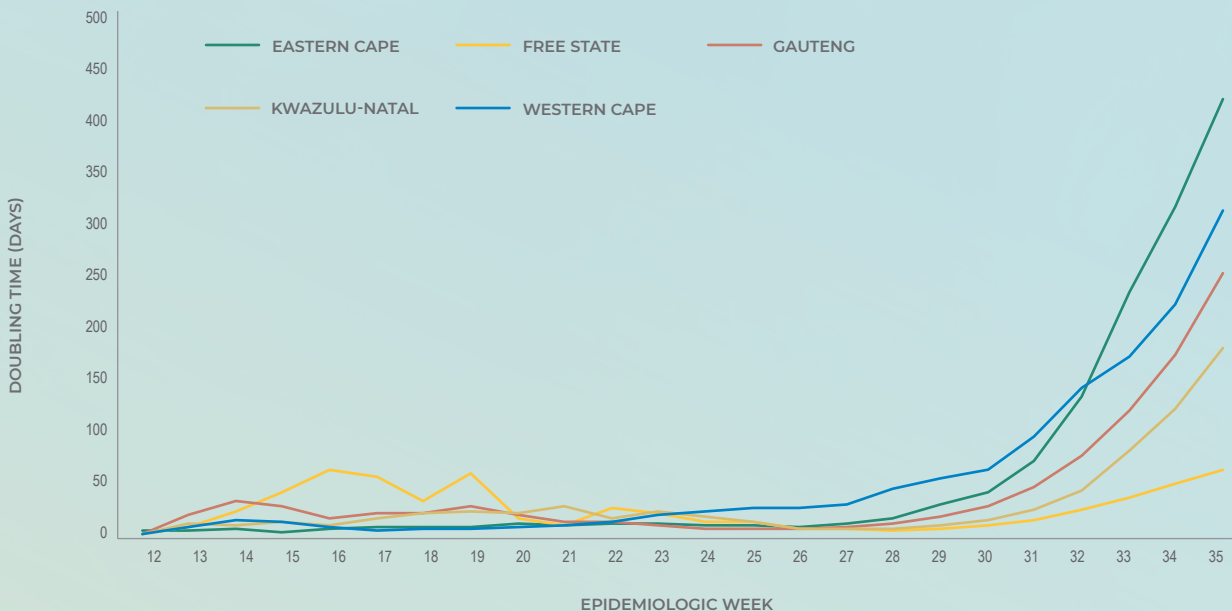


Figure 5. Doubling time of number of PCR-confirmed cases of COVID-19 by province (for 5 provinces with the majority of cases) and epidemiologic week, South Africa, 23 March-5 September 2020 (n=561 539)



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 (81 271/633 657, 12.7%) and 30-34-year (79 384/633 657, 12.4%) 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 (1214/ 10 464, 11.5%) followed by the 30-34-year age group (1 196/10 464, 11.3%). The median age for cases reported in week 36 was the same (40 years, IQR 29-53), as that of total cases (40 years). The highest cumulative incidence risk remained among cases aged 50-54 years (2 248 cases per 100 000 persons) and the lowest cumulative incidence risk was reported in the younger age-groups, 129.8 cases per 100 000 persons and 150.5 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 36, the highest weekly incidence risk was in cases aged ≥ 80 years (40.5 cases per 100 000 persons) followed by cases in the 50-54-year age group (34.9 cases per 100 000 persons) and the lowest weekly incidence risk was in the 0-4-year age group (2.6 cases per 100 000 persons).

To date, the majority of COVID-19 cases reported were female (58.3%, 369 038/ 633 027). This trend continued in the past week where 57.7% (6 062/10 511) of cases were female. The cumulative incidence risk has remained consistently higher among females (1 217.4 cases per 100 000 persons) than among males (914.5 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 (2 327.8 cases per 100 000 persons) and males aged 50-54 years (2 131.3 cases per 100 000 persons) (Figure 8 and Figure 9). In week 36, the highest incidence risk for both males (38.0 cases per 100 000 persons) and females (45.7 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-5 September 2020 (n=628 659, sex/age missing for 9 858)

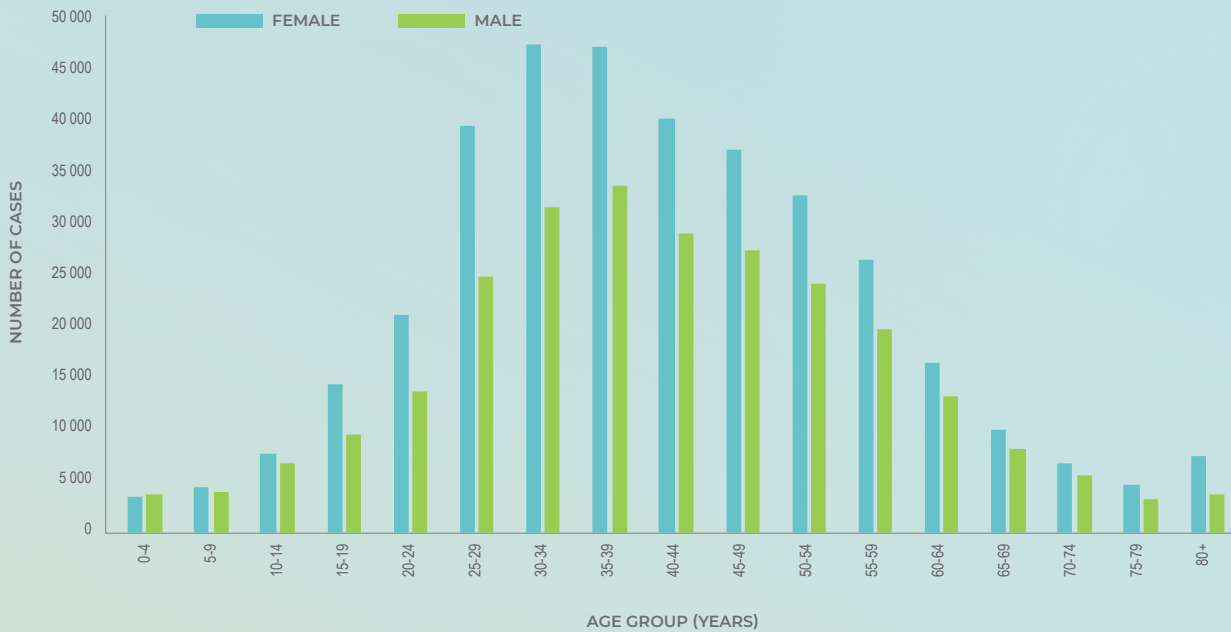
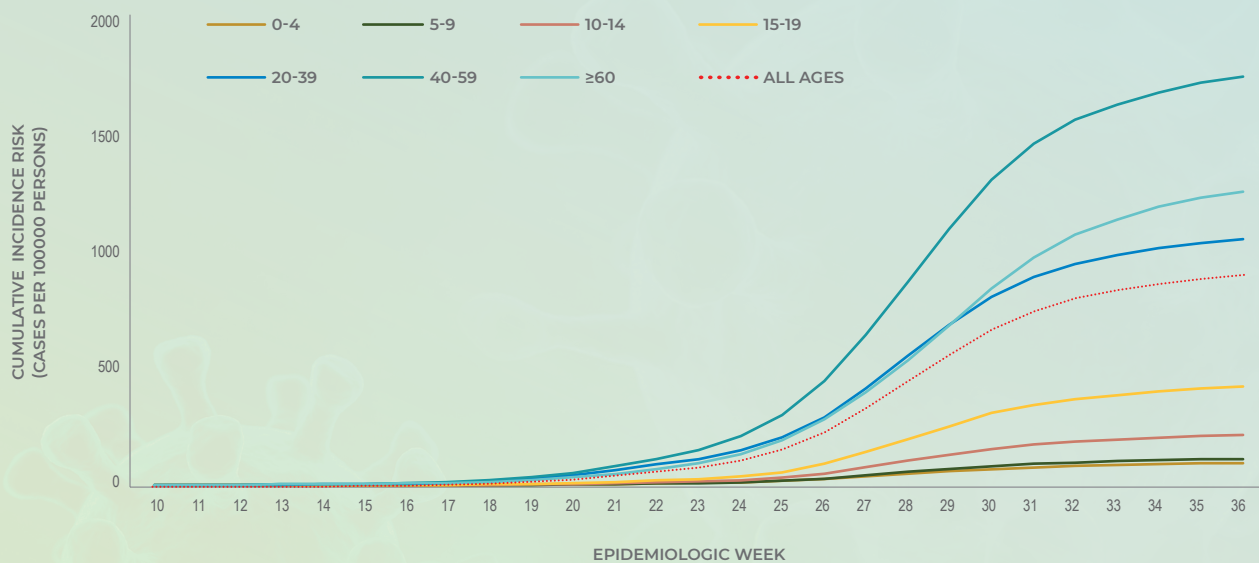


Figure 7. Cumulative incidence risk of PCR-confirmed cases of COVID-19 by age group in years and epidemiologic week, South Africa, 3 March-5 September 2020 (n=633 697, 4 820 missing dates of specimen collection/age)



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Figure 8. Cumulative incidence risk by sex and epidemiological week, South Africa, 3 March-5 September 2020 (n=632 947, sex/epidemiologic week missing for 5 570)

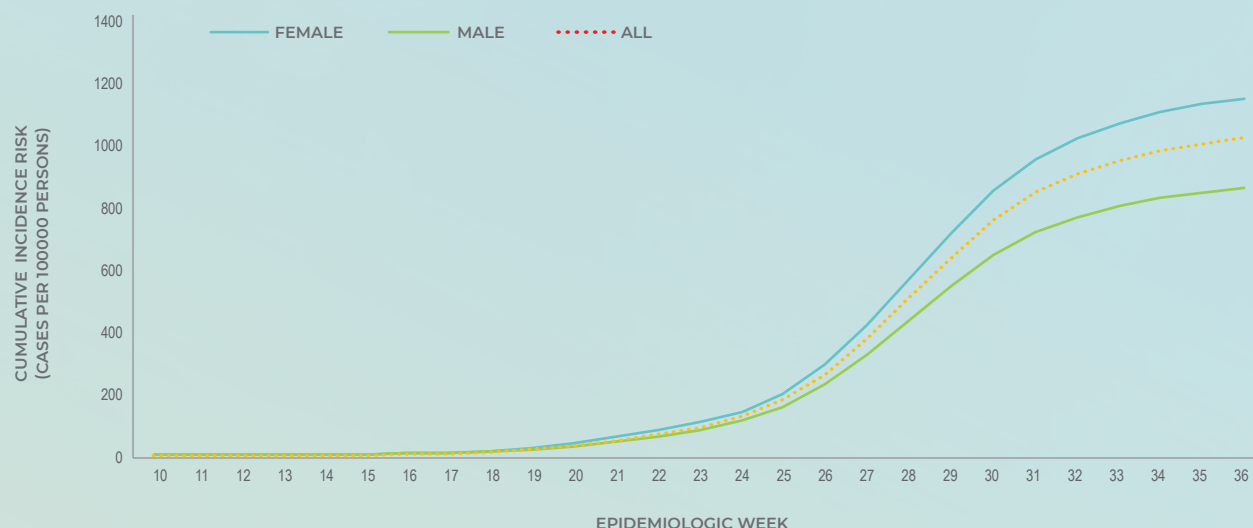
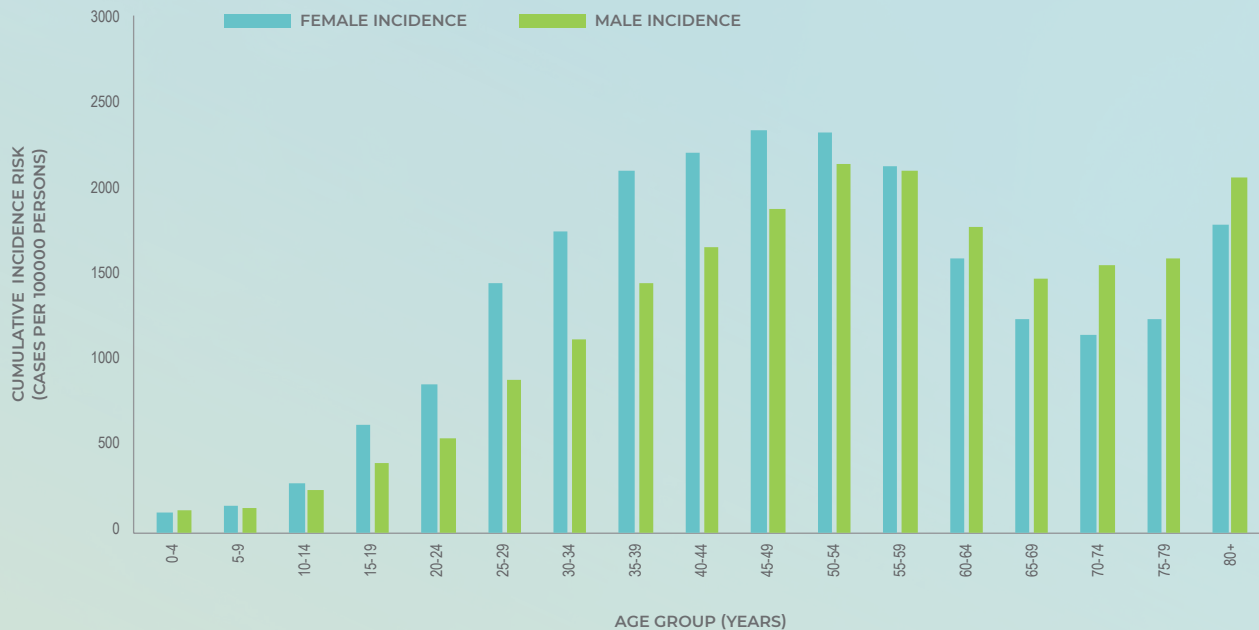


Table 2. Number of cases and cumulative/weekly incidence risk by age group, South Africa, 3 March-5 September 2020, n= 638 517

Age group (years)	Cumulative cases (n) (percentage, n/total cases in South Africa)	New cases ¹ detected in week 36 (30 August-05 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 36 (cases/100 000 persons)
0-4	7 444 (1.2)	147 (1.4)	5733 946	129.8	2.6
5-9	8 634 (1.4)	181 (1.7)	5737 439	150.5	3.2
10-14	14 802 (2.3)	340 (3.2)	5427 902	272.7	6.3
15-19	24 231 (3.8)	532 (5.0)	4660 002	520.0	11.4
20-24	35 052 (5.5)	585 (5.6)	4914 186	713.3	11.9
25-29	64 819 (10.2)	942 (8.9)	5528 571	1 172.4	17.0
30-34	79 384 (12.4)	1 196 (11.3)	5537 963	1 433.5	21.6
35-39	81 721 (12.7)	1 214 (11.5)	4571 175	1 777.9	26.6
40-44	69 605 (11.0)	1 032 (9.7)	3585 408	1 941.3	28.8
45-49	64 727 (10.2)	988 (9.3)	3045 617	2 125.3	32.4
50-54	56 998 (9.0)	884 (8.4)	2535 048	2 248.4	34.9
55-59	46 514 (7.3)	734 (6.9)	2192 512	2 121.5	33.5
60-64	29 879 (4.7)	554 (5.2)	1784 476	1 674.4	31.0
65-69	18 308 (2.9)	383 (3.6)	1370 121	1 336.2	28.0
70-74	12 469 (2.0)	305 (2.9)	949 812	1 312.8	32.1
75-79	8 164 (1.3)	203 (1.9)	597 874	1 365.5	34.0
≥80	11 359 (1.8)	244 (2.3)	602 969	1 883.8	40.5
Unknown	4 857	122			
Total	638 517	10586	58775 021	1 086.4	18.0

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); ³2019 Mid-year population Statistics South Africa

Figure 9. Cumulative incidence risk by age group and sex, South Africa, 3 March-5 September 2020 (n= 628 661, sex/age missing for 9 856)



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, 638 517 cases, including 14 889 deaths have been reported. Similar to the previous three weeks, the weekly incidence risk of cases per 100 000 persons for all provinces continued to decrease compared to the preceding week. In week 36, 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.