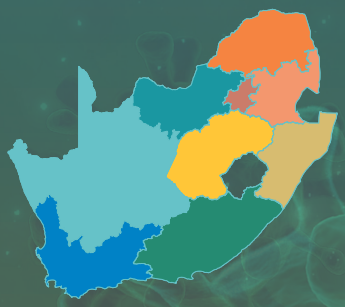
COVID-19 WEEKLY EPIDEMIOLOGY BRIEF

NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

SOUTH AFRICA | WEEK 29 2020

CUMULATIVE DATA FROM

31 JANUARY 2020 ▶ 18 JULY 2020



CASES

364 328
IN TOTAL

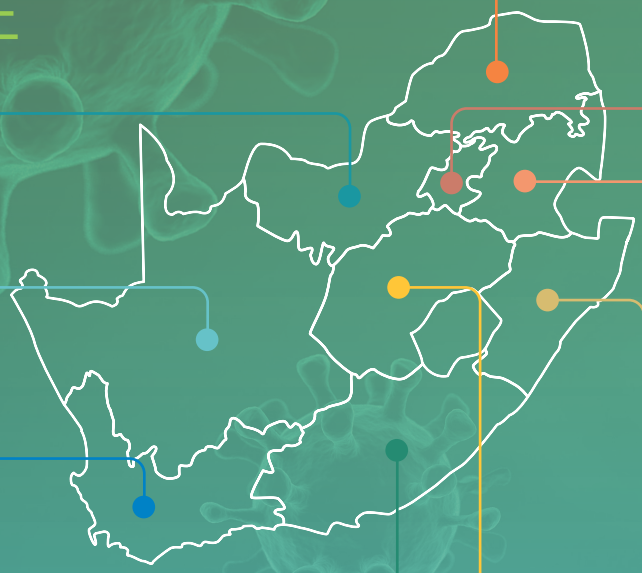
88 018
THIS WEEK

PERSONS

620.0
INCIDENCE RISK*

39
MEDIAN AGE

PROVINCES AT A GLANCE



NORTH WEST
CASES: 14 006 IN TOTAL | 347.8 /100,000*

NORTHERN CAPE
CASES: 2 266 IN TOTAL | 179.3 /100,000*

WESTERN CAPE
CASES: 85 926 IN TOTAL | 1255.4 /100,000*

EASTERN CAPE
CASES: 63 181 IN TOTAL | 941.3 /100,000*

LIMPOPO
CASES: 4 928 IN TOTAL | 82.4 /100,000*

GAUTENG
CASES: 133 617 IN TOTAL | 880.4 /100,000*

MPUMALANGA
CASES: 7 129 IN TOTAL | 155.2 /100,000*

KWAZULU-NATAL
CASES: 43 215 IN TOTAL | 382.8 /100,000*

FREE STATE
CASES: 9 992 IN TOTAL | 346.0 /100,000*

* **Incidence risk** - cases per 100 000 persons

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 18 July 2020 (week 29 of 2020). Note: COVID-19 is the name of the disease and SARS-CoV-2 is the name of the virus.

Highlights

- As of 23:59 on 18 July 2020, a total of 364 328 laboratory-confirmed COVID-19 cases had been detected in South Africa. Of these, 88 018 were reported during epidemiological week 29 of 2020. In the past week an increase of 8 526 in week 29 as compared to week 28. This increase was however lower than the increase observed from week 27 to week 28 (20 876 cases).
- A total of 5 033 (954 new deaths reported in past week) individuals died with a case-fatality ratio of 1.4%. The number of additional deaths was higher than the number reported in the previous week (880).
- Three provinces, Gauteng (133 617/364 260, 36.7%), followed by Western Cape (85 926/364 320, 23.6%) and Eastern Cape (63 181/364 260, 17.3%) continue to contribute the majority (282 724/364 260, 77%) of total COVID-19 cases in South Africa.
- In the past week, the highest increase in cumulative incidence risk among all cases was among individuals in the ≥80 -year age group, 319.8 cases per 100 000 persons and the lowest increase in cumulative incidence risk was in the 0-4-year age group 74.9 cases per 100 000 persons.
- COVID-19 cases aged <20 years:
  - Individuals aged <20 years constitute 8% (29 526) of total cases to date.
  - To date, the majority of cases aged <20 years were reported from Gauteng Province, (34.5%, 10 175/29 523), followed by Eastern Cape (22.3%, 6 580 /29 523) and Western Cape provinces (16.5%, 4 856/29 523).
  - The cumulative incidence risk among cases aged <20 years increased from 118.7 cases per 100 000 persons in week 28 to 136.9 cases per 100 000 persons in week 29.
  - The peak incidence for both females and males, was reported among individuals aged 15-19 years, 393.7 cases per 100 000 persons in females and 268.6 cases per 100 000 persons in males.
- This report includes a new result of the weekly doubling time in the most affected provinces. In week 28 the longest doubling time in number of cases was estimated for Western Cape (45 days), followed by Eastern Cape (18 days), Gauteng (12 days) and KwaZulu-Natal (9 days). A longer doubling time may suggest a slower rate of transmission.
- 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 data becomes available.

LABORATORY-CONFIRMED CASES OF COVID-19 IN SOUTH AFRICA

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 discontinued and testing efforts 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. 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 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 from 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.

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

As of 18 July 2020, a total of 364 328 laboratory-confirmed COVID-19 cases were reported in South Africa. The number of new cases, 88 018, reported in the past week was higher than the number of cases reported the previous week, 79 492 in week 28. In week 29, Gauteng Province continued to report the highest percentage of new cases (35 186/88 018, 40.0%), followed by KwaZulu-Natal Province (17 643/ 88 018; 20.0%), and Eastern Cape Province (12 881/88 018, 14.6%) (Table 1). Three provinces, Gauteng (133 617/364 260, 36.7%), followed by Western Cape (85 926/364 320, 23.6%) and Eastern Cape (631 81/364 260, 17.3%) continue to contribute the majority (282 724/364 260, 77%) of total COVID-19 cases in South Africa. However, the proportionate contribution of these three

57.5%

OVERALL MAJORITY OF CASES REPORTED ARE FEMALE

provinces is going down with time as the numbers of cases increase in the other provinces.

As in previous weeks, the Western Cape Province had the highest cumulative incidence risk (1255.4 cases per 100 000 persons) followed by the Eastern Cape (941.3 per 100 000 persons) and Gauteng provinces (880.4 cases per 100 000 persons). The Limpopo Province remains the province with the lowest cumulative incidence risk (82.4 cases per 100 000 persons) to date.

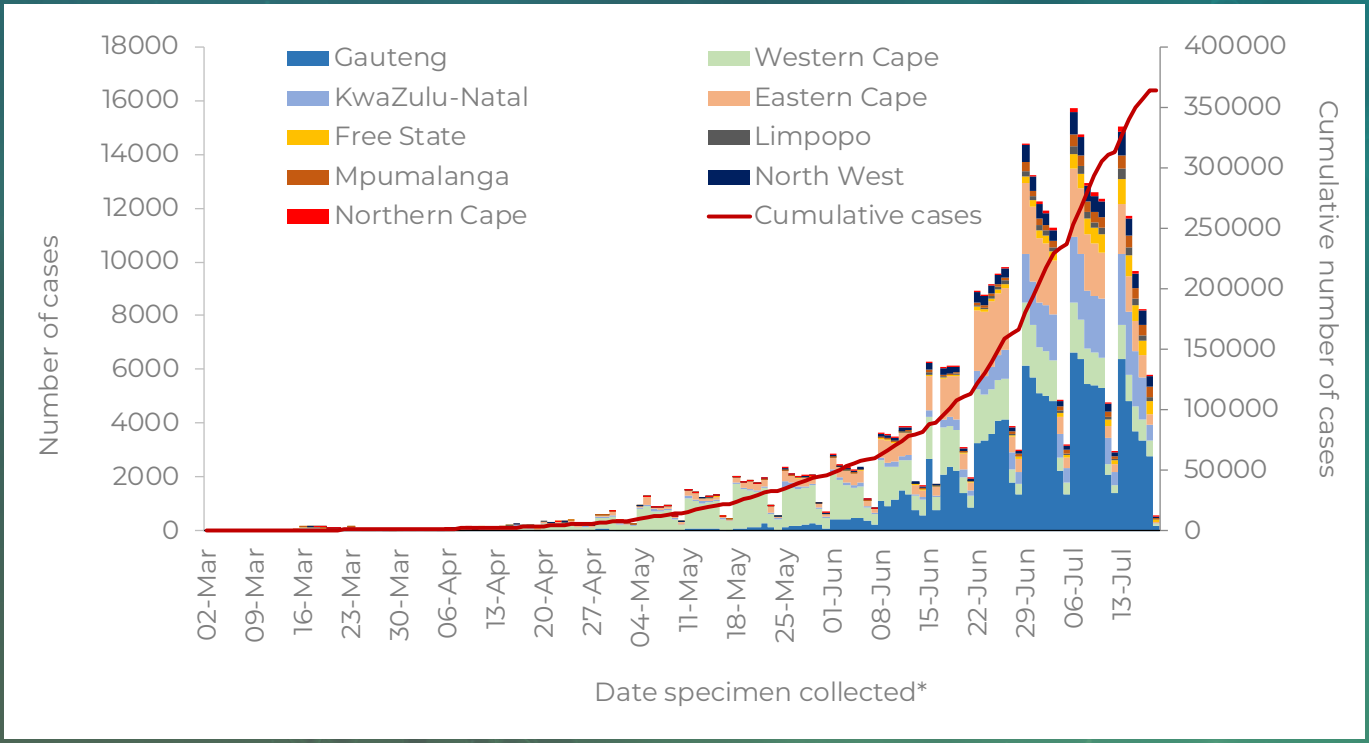
The cumulative incidence risk for the country increased from 470.0 cases per 100 000 persons in week 28 to 620.0 cases per 100 000 persons in week 29. The cumulative incidence risk varied by province over time (Figure 3). This is partly explained by testing differences by province (Table 1). In the past week, the Free State Province reported an increase in the weekly incidence risk, whereas other provinces showed either some decline or no change in weekly incidence risk. Gauteng Province reported the highest incidence risk (143.2 cases/100 0000 persons) (Figure 4). Among the four provinces reporting the majority of cases in South Africa to date, doubling time of number of cases varied with time (Figure 5). We estimated an increase in doubling time for the four provinces (Eastern Cape, Western Cape, Gauteng and KwaZulu-Natal) in week 27 and week 28. In week 28, the longest doubling time was estimated for Western Cape (45 days), followed by Eastern Cape (18 days), Gauteng (12 days) and KwaZulu-Natal (9 days).

To date, the case fatality ratio remains below 2% (5 033/364 328, 1.4%). Of the 5 033 individuals reported to have died, 954 were reported in the past week. The number of deaths reported in the past week is higher than the number reported in the previous week 954 vs. 880. A crude case-fatality ratio (CFR) calculated in this way (number of deaths/ number of diagnosed cases) is subject to numerous limitations. 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 deaths may be delayed.

620.0 /100 000
OVERALL INCIDENCE RISK

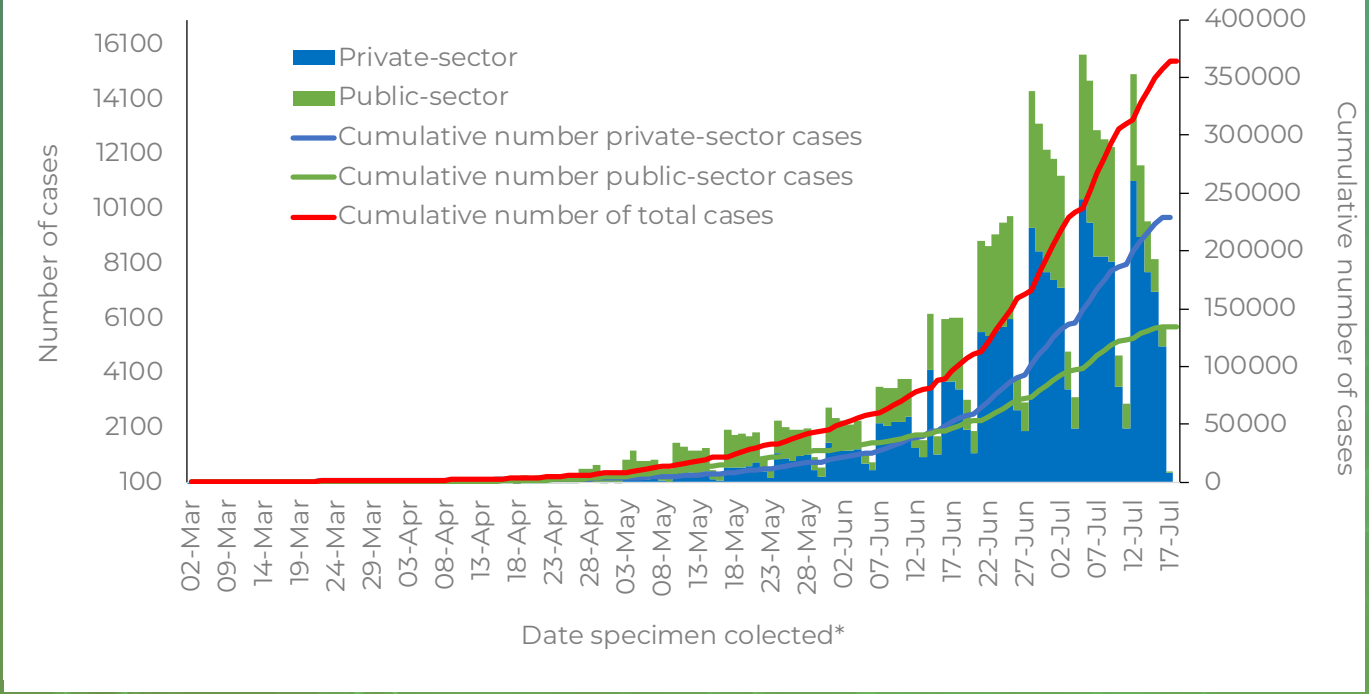
40.0%
CASES REPORTED IN GAUTENG PROVINCE IN THE PAST WEEK

50-54
YEAR AGE GROUP
HAS THE HIGHEST INCIDENCE



*Date of specimen receipt used where date of collection was missing

Figure 1. Number and cumulative number of laboratory-confirmed cases of COVID-19 by province and date of specimen collection, South Africa, 3 March-18 July 2020 (n=363 932, 396 missing dates of specimen collection/province allocation)



*Date of specimen receipt used where date of collection was missing

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-18 July 2020 (n=364 118, 210 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-18 July 2020 (n=364 328)

Province	Cumulative number of cases (% of total for South Africa)	New cases (12 July-18 July 2020), n (percentage,% n/total cases reported in week 29)	Population in mid-2019* (n)	Cumulative incidence risk (cases/100 000 persons)	Incidence risk of cases reported in week 29 (cases/100 000 persons)	Tests[£] per 100 000 persons, 12 July-18 July 2020
Eastern Cape	63 181 (17.3)	12 881 (14.6)	6 712 276	941.3	191.9	257.0
Free State	9 992 (2.7)	4 769 (5.4)	2 887 465	346.0	165.2	451.1
Gauteng	133 617 (36.8)	35 186 (40.0)	15 176 115	880.4	231.9	461.0
KwaZulu-Natal	43 215 (11.8)	17 643 (20.0)	11 289 086	382.8	156.3	307.8
Limpopo	4 928 (1.4)	1 914 (2.2)	5 982 584	82.4	32.0	86.4
Mpumalanga	7 129 (2.0)	3 152 (3.6)	4 592 187	155.2	68.6	193.0
North West	14 006 (3.8)	4 082 (4.6)	4 027 –160	347.8	101.4	191.6
Northern Cape	2 266 (0.6)	865 (1.0)	1 263875	179.3	68.4	129.7
Western Cape	85 926 (23.6)	7 527 (8.6)	6 844 272	1255.4	110.0	307.8
Not allocated	68					
South Africa	**364 328**	**88 018 (100)**	**58 750 220**	**620.0**	**149.8**	**101.4**

* 2019 Mid-year population Stats SA [£]Data on number of tests conducted from COVID-19 weekly testing report

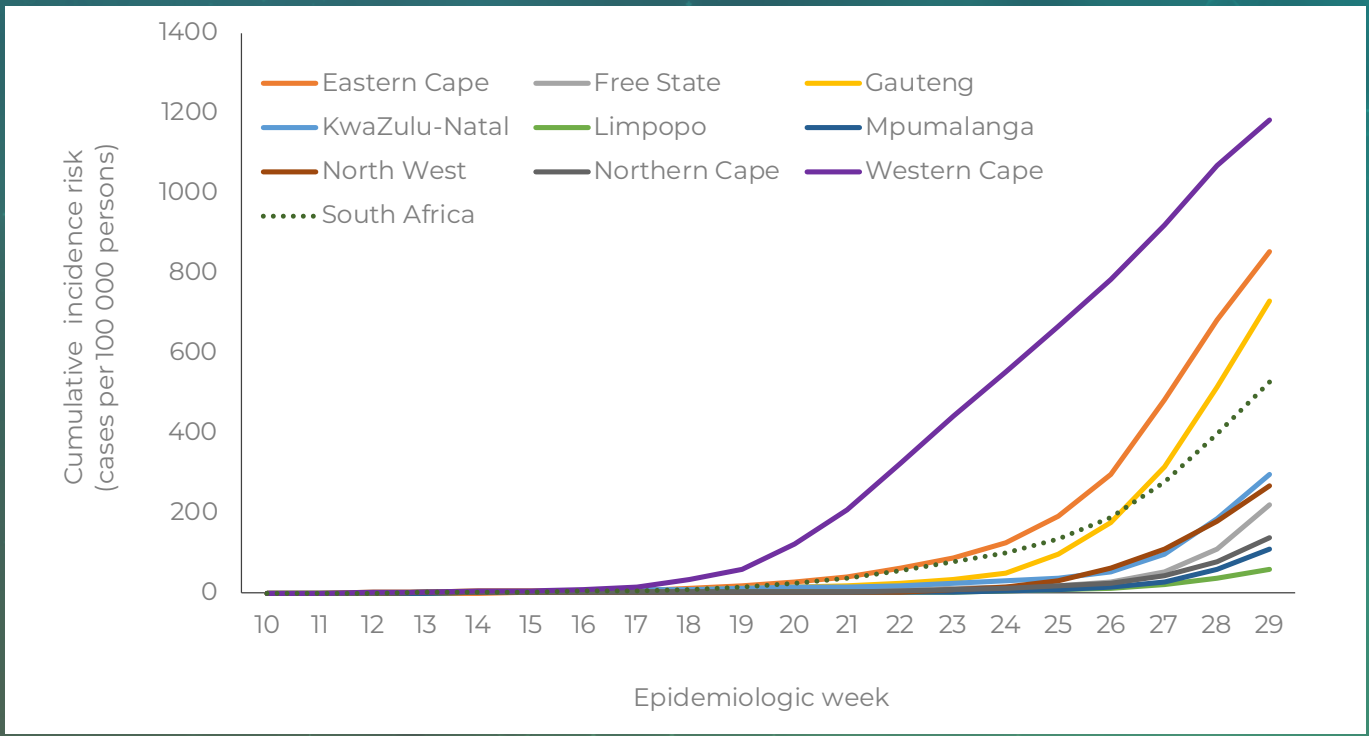


Figure 3. Cumulative incidence risk of PCR-confirmed cases of COVID-19 by province and epidemiological week, South Africa, 3 March-18 July 2020 (n=364 132, 196 missing dates of specimen collection/province allocation)

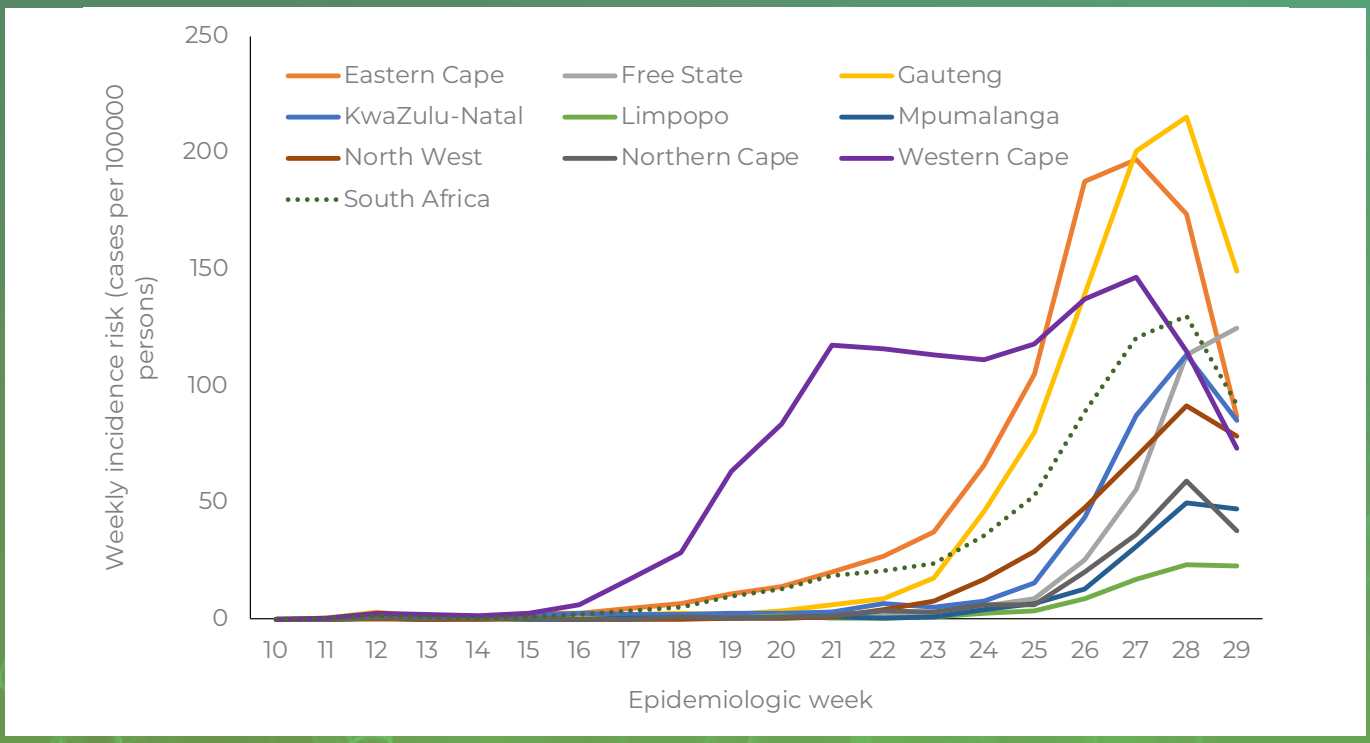


Figure 4. Weekly incidence risk of PCR-confirmed cases of COVID-19 by province and epidemiological week, South Africa, 3 March-18 July 2020 (n=364 132, 196 missing dates of specimen collection/province allocation)

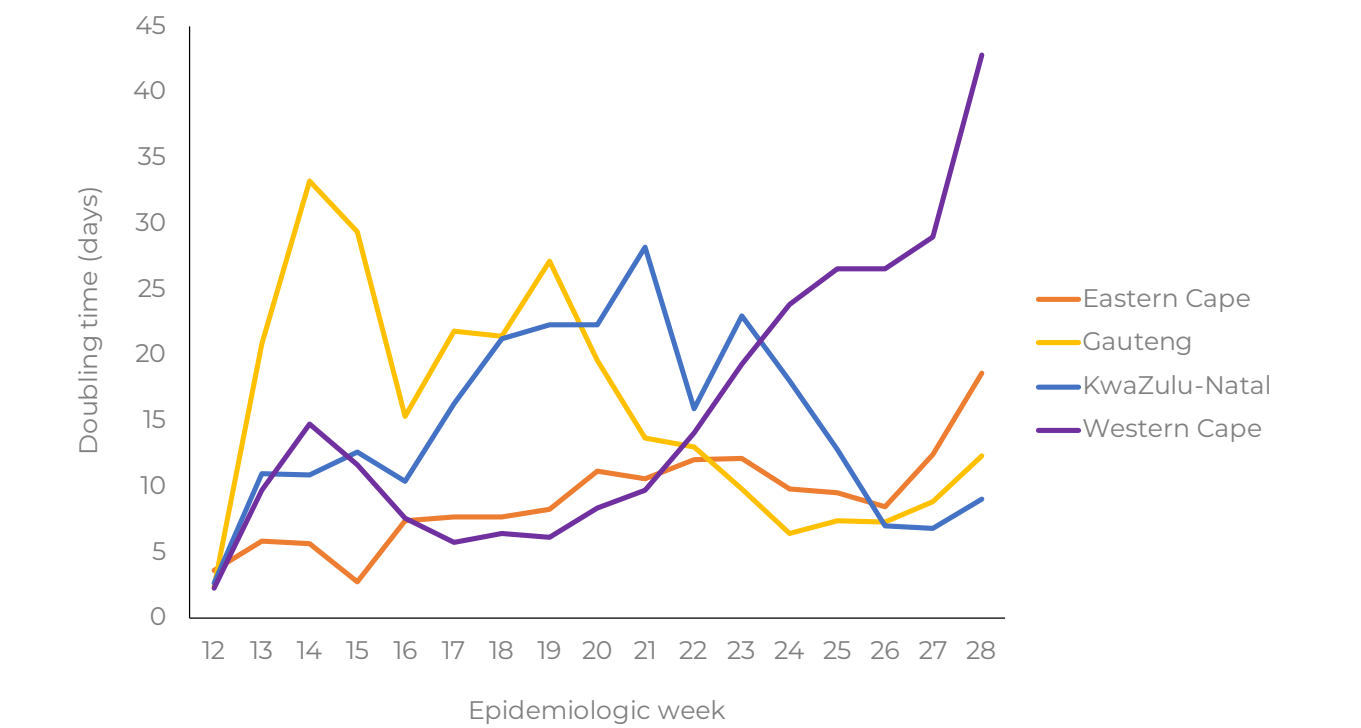


Figure 5. Doubling time of number of PCR-confirmed cases of COVID-19 by province (4 provinces with the majority of cases) and epidemiological week, South Africa, 23 March-11 July 2020

CHARACTERISTICS OF COVID-19 CASES IN SOUTH AFRICA BY AGE AND SEX

The median age of COVID-19 cases in South Africa to date remains at 39 years, interquartile range (IQR) 30-51 years. The distribution of cases varied by age, with highest percentage of all cases to date in the 35-39-year age group (48 590/364 328, 13.3%) followed closely by the 30-34-year age group (47 906/364 328, 13.2%) (Figure 6). Similarly, among the cases reported in the past week, the highest percentage of cases was in the 35-39-year age group (11 659/ 88 086, 13.2%) followed by the 30-34-year age group (11 265/88 086). Cases reported in the past week had the same median age (39 years, IQR 30-50 years) as total cases. The cumulative incidence risk reported to date was 619.9 cases per 100 000 persons and varied by age group, as in previous weeks, the highest cumulative incidence risk was reported among those in the 50-54-year age group (1279.3 cases per 100 000 persons), followed by those in the ≥80-year age group (1272.9 cases per 100 000 persons). The lowest cumulative incidence

39
THE MEDIAN AGE OF CASES IN THE PAST WEEK

risk was reported in the younger age-groups, 74.9 cases per 100 000 persons and 83.5 cases per 100 000 persons in the 0-4 and 5-9-year age groups, respectively (Figure 7 and Table 2). In the past week, the highest increase in cumulative incidence risk among all cases was among individuals in the ≥80-year age group, 319.8 cases per 100 000 persons and the lowest increase in cumulative incidence risk was in the 0-4-year age group 17.9 cases per 100 000 persons. To date, the majority of COVID-19 cases reported were female (57.5%, 36 2078; 95% CI 57.4-57.7). This was similar to the percentage reported in the past week (58.0%, 50 710/83 318) (95% CI, 57.7- 58.4). The cumulative incidence risk has remained constantly higher among females than in males 692.1 cases per 100 000 persons [95% CI 689.2-695.1] versus 536.2 cases per 100 000 persons [95% CI 533.5-538.9]) (Figure 7). However, this varied by age group with the peak cumulative incidence risk among females aged 45-49 years and males aged ≥80 years (Figure 8 and Figure 9). The highest increase in cumulative incidence risk from numbers reported in week 28 to week 29 was among females (320.4 cases per 100 000 cases [95% CI 318.4-322.4] vs. 244.8 cases [95% CI 243.0-246.6]) in men. This may be partly explained by varying testing practices by age and sex (data not shown) and by health seeking behaviour.

13.3%

OVERALL HIGHEST PERCENTAGE OF CASES IN THE 35-39-YEAR AGE GROUP

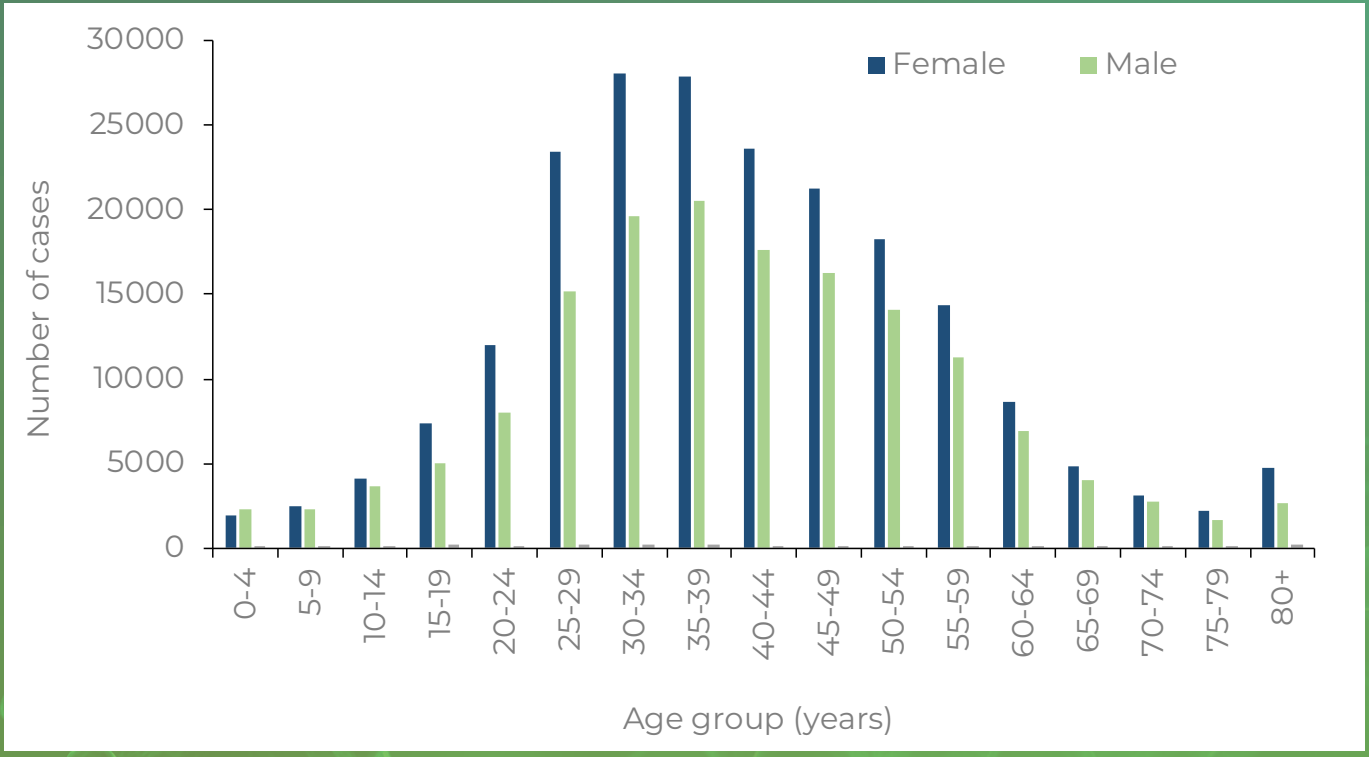


Figure 6. Number of laboratory-confirmed cases of COVID-19 by age group and sex, South Africa, 3 March-18 July 2020 (n=362 078, sex/age missing for 2 250)

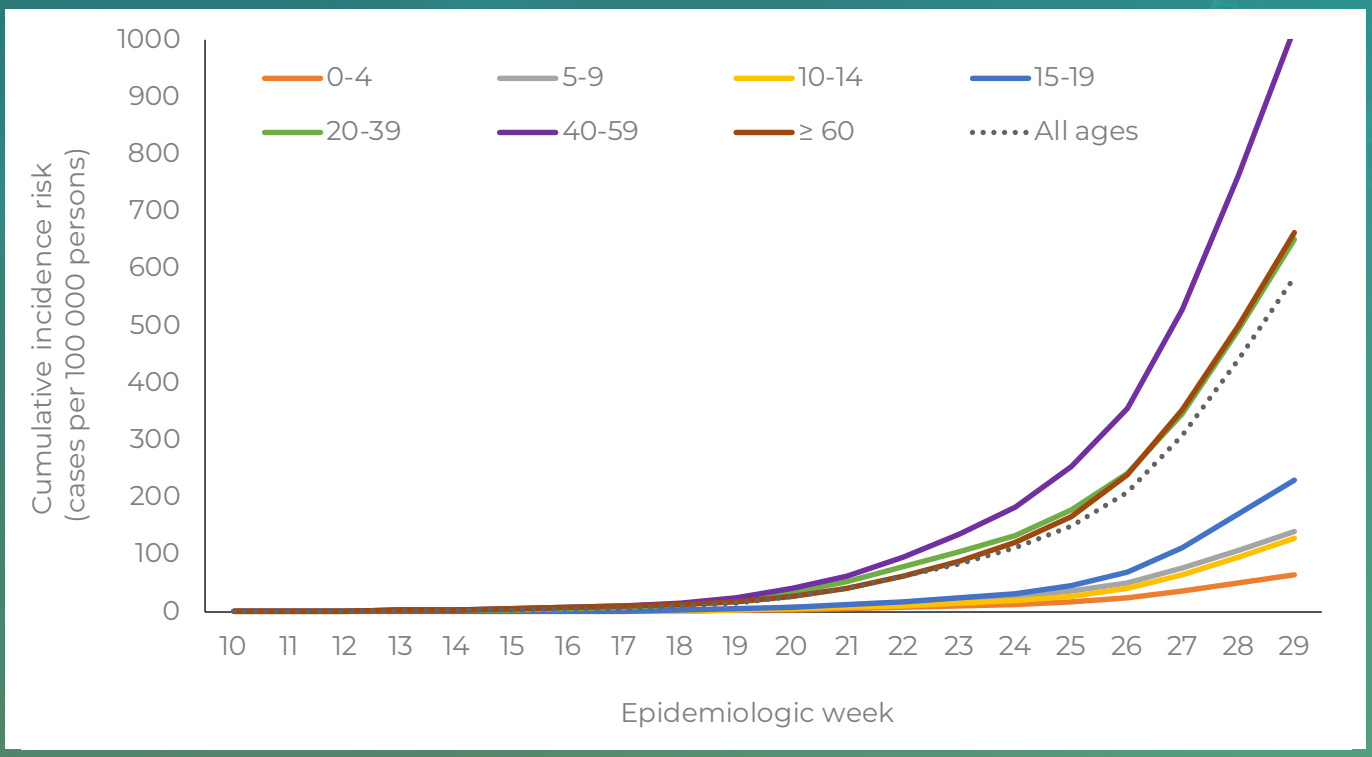


Figure 7. Cumulative incidence risk of PCR-confirmed cases of COVID-19 by age group in years and epidemiologic week, South Africa, 3 March-18 July 2020 (n=364 126, 202 missing dates of specimen collection)

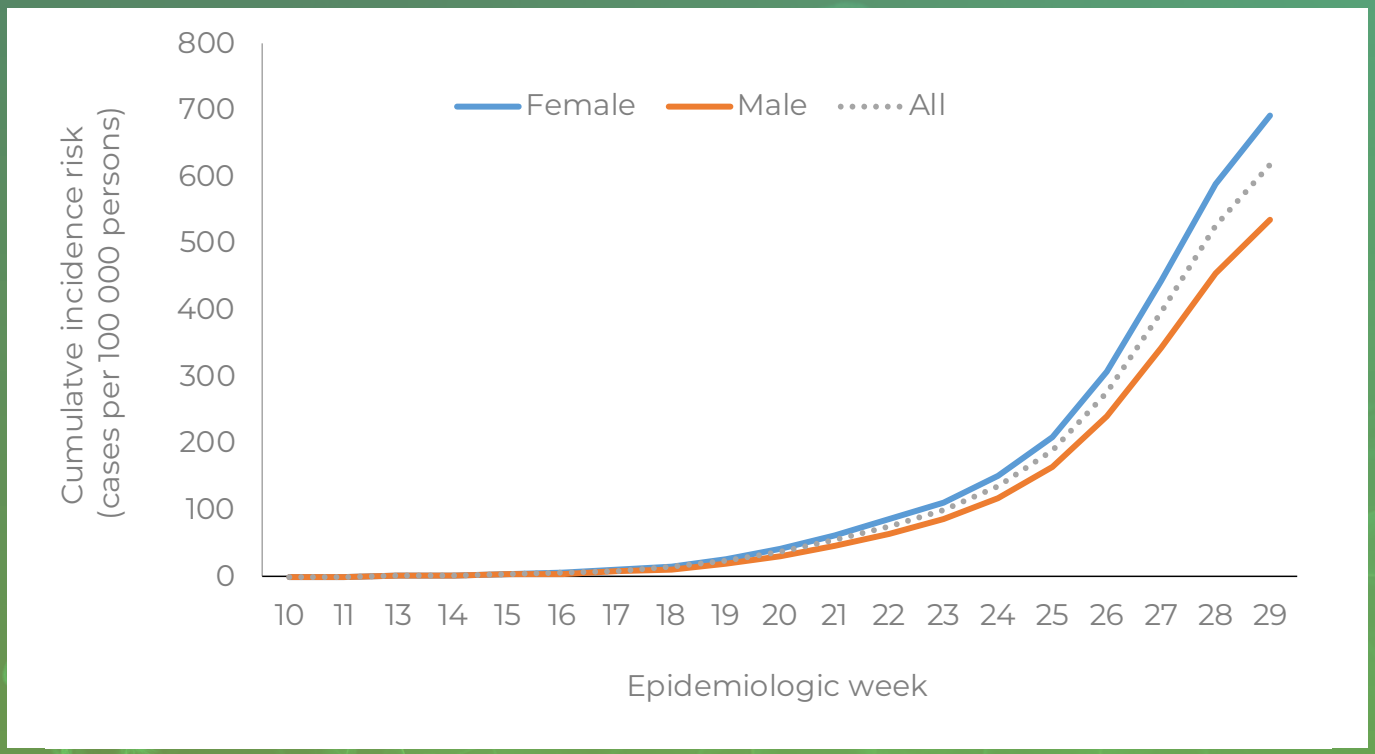


Figure 8. Cumulative incidence risk by sex and epidemiological week, South Africa, 3 March-18 July 2020 (n=361 921, sex/ specimen collection date missing for 2 407)

Table 2. Number of cases and cumulative/weekly incidence risk by age group, South Africa, 3 March- 18 July 2020, n= 364 328

Age group (years)	Number cumulative cases (n) (percentage*)	New cases 11 July-18 July, n (percentage , n/ total)	Population in mid-2019**, n	Cumulative incidence risk (cases per 100 000 persons)	Change in cumulative incidence risk (cases /100 1000 persons), week 28 to week 29
0-4	4 292 (1.2)	1 029(1.2)	5 733 946	74.9	17.9
5-9	4 791 (1.3)	1 042 (1.2)	5 737 439	83.5	18.2
10-14	7 901 (2.2)	1 960 (2.2)	5 427 902	145.6	36.1
15-19	12 542 (3.4)	3 438 (3.9)	4 660 002	269.1	73.8
20-24	20 112 (5.5)	4 594 (5.2)	4 914 186	409.3	93.5
25-29	38 864 (10.7)	9 200 (10.4)	5 528 571	703.0	166.4
30-34	47 906 (13.1)	11 265 (12.8)	5 537 963	865.0	203.4
35-39	48 590 (13.3)	11 659 (13.2)	4 571 175	1063.0	255.1
40-44	41 394 (11.4)	9 892 (11.2)	3 585 408	1154.5	275.9
45-49	37 700 (10.3)	9 132 (10.4)	3 045 617	1237.8	299.8
50-54	32 431 (8.9)	7 877 (8.9)	2 535 048	1279.3	310.7
55-59	25 769 (7.1)	6 449 (7.3)	2 192 512	1175.3	294.1
60-64	15 629 (4.3)	3 950 (4.5)	1 784 476	875.8	221.4
65-69	8 961 (2.5)	2 208 (2.5)	1 370 121	654.0	161.2
70-74	5 910 (1.6)	1 513 (1.7)	949 812	622.2	159.3
75-79	3 861 (1.1)	950 (1.1)	597 874	645.8	158.9
≥80	7 675 (2.1)	1 928 (2.2)	602 969	1272.9	319.8
Unknown	0	0 (0)			
Total	**364 328**	**88 086 (100.0)**	**58 775 022**	**619.9**	**149.9**

Percentage=n/total number of cases in current week **2019 Mid-year population Stats SA

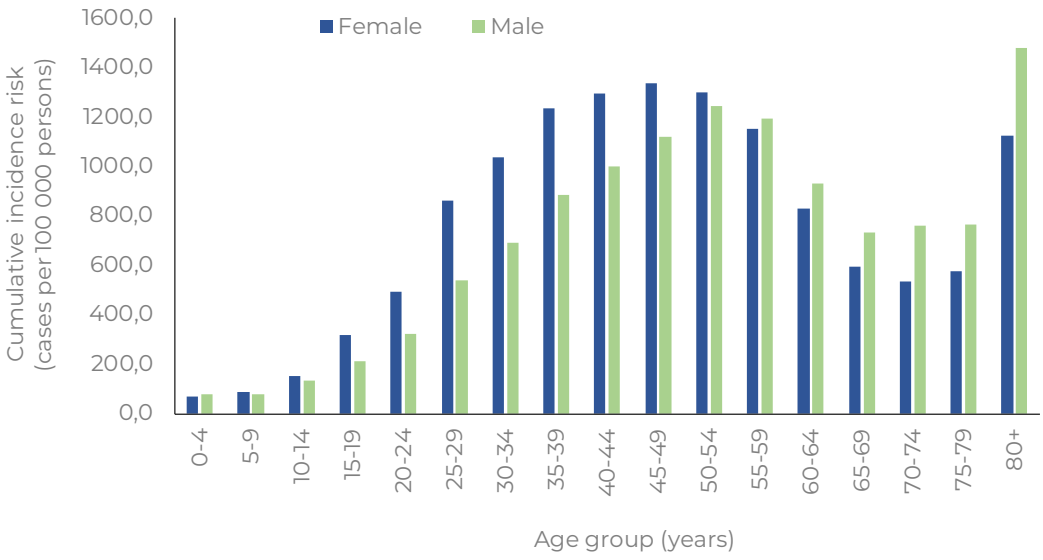


Figure 9. Cumulative incidence risk by age group and sex, South Africa, 3 March- 18 July 2020 (n=362 078, gender missing for 2 250 cases)

NATIONAL AND PROVINCIAL TRENDS OF COVID-19 CASES AGED<20 YEARS IN SOUTH AFRICA

Of the 364 328 laboratory–confirmed cases of COVID-19 in South Africa, 29 526 (8.0%) were aged <20 years. Of the 29 526 cases aged <20 years, 7 469 were reported in the past week. To date, the majority of cases aged <20 years were reported from Gauteng Province, (34.5%, 10 175/29 523), followed by Eastern Cape (22.3%, 6 580/29 523) and Western Cape provinces (16.5%, 4 856/29 523). Among cases reported in the past week, Gauteng Province (33.4%, 2 495/7 466) followed by KwaZulu-Natal (22.7%, 1 699/7 466) and Eastern Cape (18.1%, 1 355/7 466) contributed the majority (74%, 5 549/7 466) of cases aged <20 years. The Eastern Cape Province reported the highest cumulative incidence risk (466.3 cases per 100 000 persons) followed by the North West Province (445.3 per 100 000 persons) and Western Cape (443.3 cases per 100 000 persons) provinces. The Limpopo Province continues to report the lowest cumulative incidence risk (40.5 cases per 100 000 persons) to date. The cumulative incidence risk among cases aged <20 years increased from 118.7 cases per 100 000 persons in week 28 to 136.9 cases per 100 000 persons in week 29. The cumulative incidence risk varied by province over time (Figure 10).

In the past week, based on sample collection date, Limpopo Province reported an increase in the weekly incidence risk, whereas other provinces reported a decrease, with Eastern Cape reporting the largest decrease (17.3 cases per 100 000 reported in week 29 vs. 41.8 cases per 100 000 persons in week 28) (Figure 11). In the past week the highest weekly incidence risk was reported in North West Province (44.5 cases per 100 000) followed by Gauteng Province (33.4 cases per 100 000 persons) and Free State Province (33.1 cases per 100 000 persons).

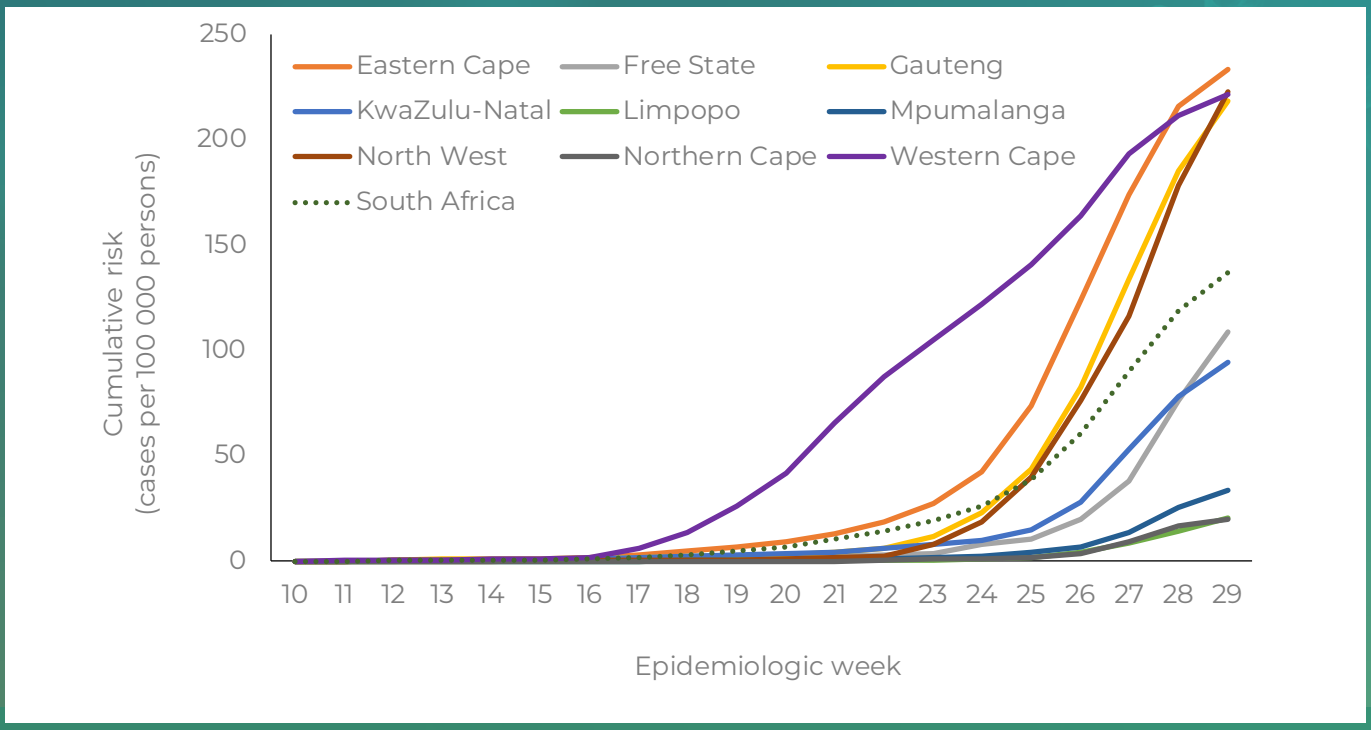


Figure 10. Cumulative incidence risk of PCR-confirmed cases of COVID-19 mong individuals aged <20 years by province and epidemiological week, South Africa, 3 March-18 July 2020 (n=29 507, 19 missing sample collection date/province)

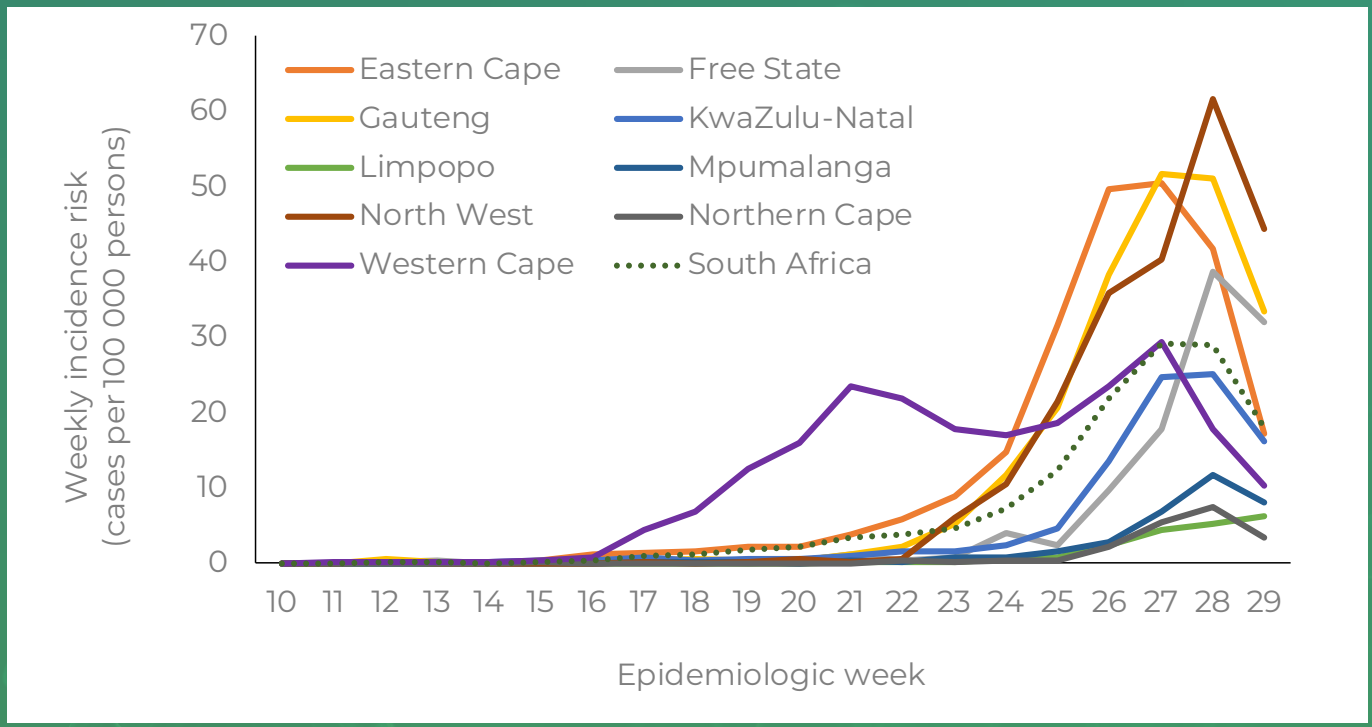


Figure 11. Weekly incidence risk of PCR-confirmed cases of COVID-19 among individuals aged <20 years by province and epidemiological week, South Africa, 3 March-18 July 2020 (n=29 507, 19 missing dates of specimen collection/province allocation)

CHARACTERISTICS OF CASES AGED <20 YEARS IN SOUTH AFRICA BY AGE AND SEX

Among the individuals <20 years, 54% (15 886/29 064) were female and the majority, (12 542/29 526, 42.5%) were aged ≥15 years. The median age of cases was 13 years IQR (8-17). The overall cumulative risk among cases aged <20 years was 136.9, increased with increasing age, with highest (269.1 cases per 100 000 persons) cumulative incidence risk reported among cases aged 15-19 years and the lowest cumulative incidence risk reported among cases aged 5-9 years (74.9 cases per 100 000 persons). The cumulative incidence risk was higher among females (155.5 cases per 100 000 persons) than in males (126.5 cases per 100 000). The peak incidence for both females and males, was reported among individuals aged 15-19 years, however, this was higher for females, 393.7 cases per 100 000 persons versus 268.6 cases per 100 000 persons in males (Figure 12).

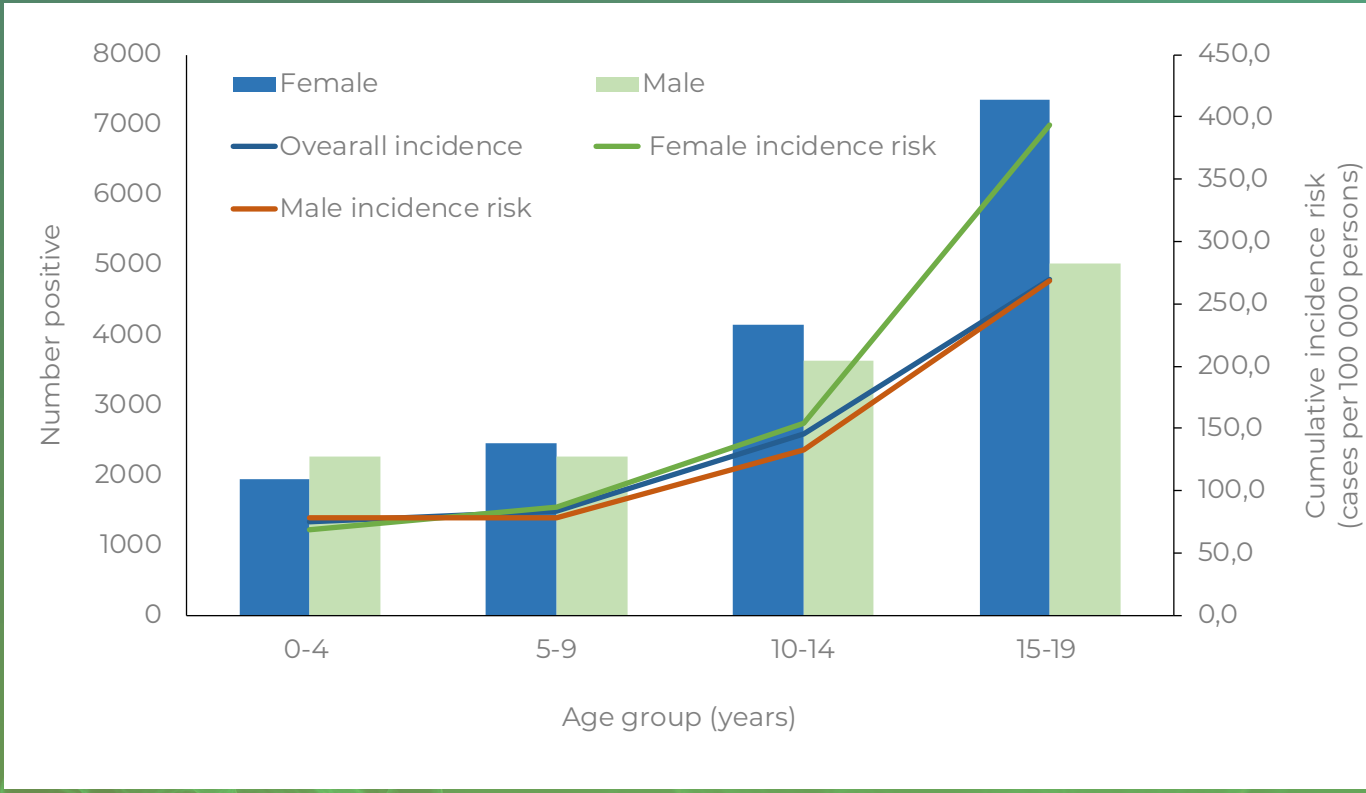


Figure 12. Number and incidence risk of laboratory-confirmed COVID-19 cases aged <20 years by age group and sex, South African 3 March 2020-18 July 2020, (n=29 064, 462 missing sex)

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 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 increase the doubling time estimate.

CONCLUSIONS

Cases of COVID-19 continue to increase in South Africa, with 346 328 cases, including 5 033 deaths reported to date. Although the number of deaths is increasing, the case fatality ratio remains below 2% (5 033/364 328, 1.4%). Individuals <20 years continue to contribute a small percentage (29 526 (8.0%) of the total cases in South Africa.

In the past week, Limpopo was the only province, which reported an increase in weekly incidence risk among cases aged <20 years, whereas all the other provinces reported a decline. Among all cases, the Free State Province was the only province that reported a noticeable increase in weekly incidence risk among individuals of all ages. In week 28, the longest doubling time of number cases since week 12 was estimated for Western Cape (45 days). The decline or no change in weekly incidence risk may reflect a true slowing of the rate of increase, especially in the provinces, which had reported high numbers of cases earlier on in the pandemic. This may also be due to the changing testing practices with a shift to prioritisation of testing for hospitalised cases. Gauteng Province is currently the most affected province by the COVID-19 pandemic, contributing 36.7% of total cases and a cumulative incidence risk of 880.4 cases per 100 000 persons. The cumulative incidence risk increases with increasing age and peaks in the 50-54-year age group. Similarly among cases aged <20 years, the incidence risk increased with increasing age, peaking in the 15-19 year-age group. Overall and among cases aged <20 years, females continue to contribute the majority of cases to date.