

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE



NATIONAL INSTITUTE FOR
COMMUNICABLE DISEASES

Division of the National Health Laboratory Service

SOUTH AFRICA WEEK 45 2020

OVERVIEW

This report summarises data of COVID-19 cases admitted to DATCOV hospital surveillance sites in all provinces. The report is based on data collected from 5 March to 7 November 2020.

HIGHLIGHTS

- As of 7 November, 96,399 COVID-19 admissions were reported from 606 facilities (358 public-sector and 248 private-sector) in all nine provinces of South Africa. DATCOV coverage is now 99% of public and 100% of private hospitals that have had COVID-19 admissions. New hospitals that have enrolled need to capture historical admissions.
- There has been a resurgence in admissions in the Eastern Cape for three weeks. The resurgence is located mainly in Nelson Mandela Metro district, in public and private hospitals. There has also been a corresponding increase in in-hospital deaths in Nelson Mandela Metro district during this time.
- The number of reported COVID-19 admissions and deaths has decreased across all provinces (including Eastern Cape) in week 45, with only three districts showing small increases, Overberg and Central Karoo (both Western Cape) and Ekurhuleni (Gauteng). Decreases may be related to delays in reporting.

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

METHODS

DATCOV, sentinel hospital surveillance for COVID-19 admissions, was initiated on the 1 April 2020. A COVID-19 case was defined as a person with a positive reverse transcriptase polymerase chain reaction (RT-PCR) assay for SARS-CoV-2 who was admitted to a DATCOV sentinel hospital. Case fatality ratio (CFR) was calculated for all closed cases, i.e. COVID-19 deaths divided by COVID-19 deaths plus COVID-19 discharges, excluding individuals who are still admitted in hospital. For the calculation of cumulative incidence rates, StatsSA mid-year population estimates for 2020 were utilised.

Data are submitted by public and private hospitals that have agreed to report COVID-19 admissions through DATCOV surveillance in all nine provinces of South Africa. On 15 July 2020, the National Health Council decided that all hospitals should report to DATCOV. As of 7 November 2020, a total of 606 facilities submitted data on hospitalised COVID-19 cases, 358 from public sector and 248 from private sector (Table 1). This reflects 99% and 100% coverage of all public and private hospitals respectively that have had COVID-19 admissions. As new hospitals join the surveillance system, they have retrospectively captured all admissions recorded although there may be some backlogs in retrospective data capture.

Table 1. Number of hospitals reporting data on COVID-19 admissions by province and sector, South Africa, 5 March-7 November 2020

Name of province	Public Sector	Private Sector
Eastern Cape	82	17
Free State	35	20
Gauteng	38	90
KwaZulu-Natal	63	45
Limpopo	34	7
Mpumalanga	25	9
North West	12	12
Northern Cape	13	8
Western Cape	56	40
South Africa	358	248

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

RESULTS

Epidemiological and geographic trends in admissions

From 5 March to 7 November, a total of 96,399 COVID-19 admissions were reported from 606 facilities in all nine provinces of South Africa. Initially, most admissions were reported in the private sector; from week 16 a higher proportion of total admissions was reported in the public sector; and since week 27 a higher proportion was again reported in the private sector. There has been a decrease in reported COVID-19 admissions since the peak in weeks 29 and 30 (Figure 1).

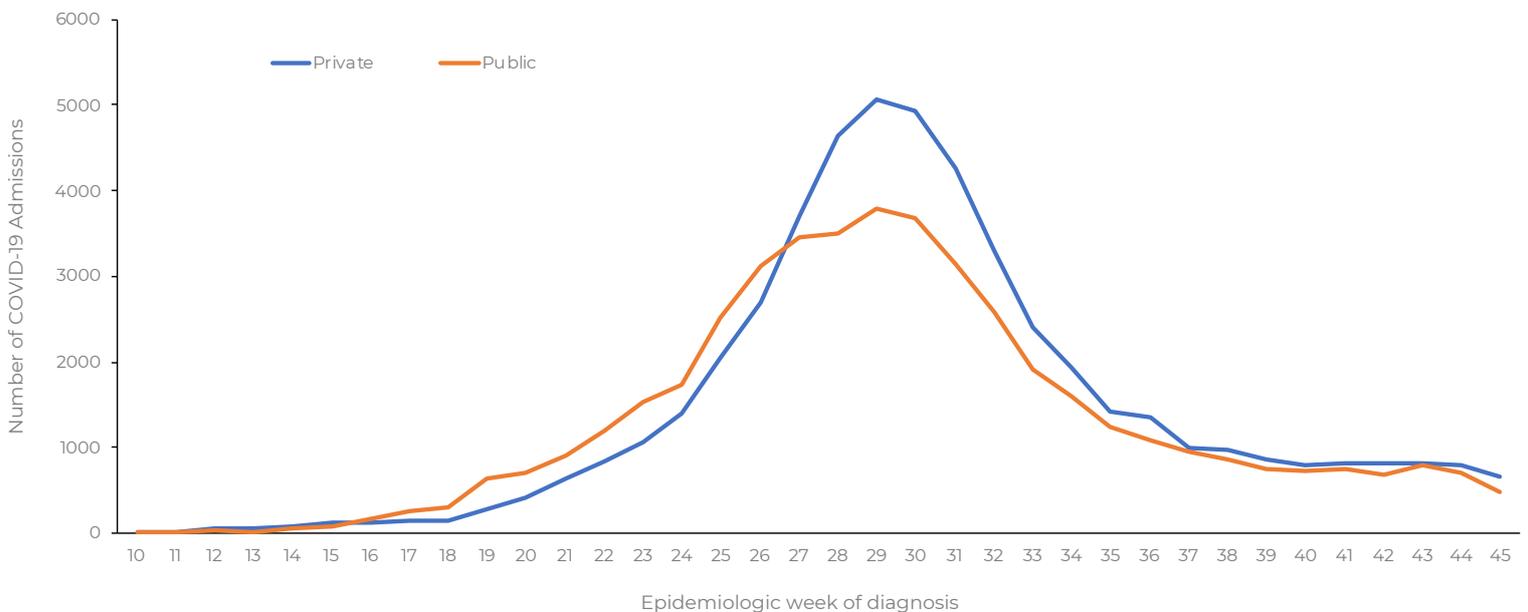


Figure 1. Number of reported COVID-19 admissions, by province and epidemiologic week of diagnosis, South Africa, 5 March-7 November 2020, n=96,399

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

The majority of admissions were recorded in four provinces, Gauteng (29,356; 30.4%), followed by Western Cape (19,846; 20.5%), KwaZulu-Natal (15,582; 16.1%) and Eastern Cape (13,210; 13.7%) provinces (Figure 2). Admissions have increased in Eastern Cape over the past three weeks.

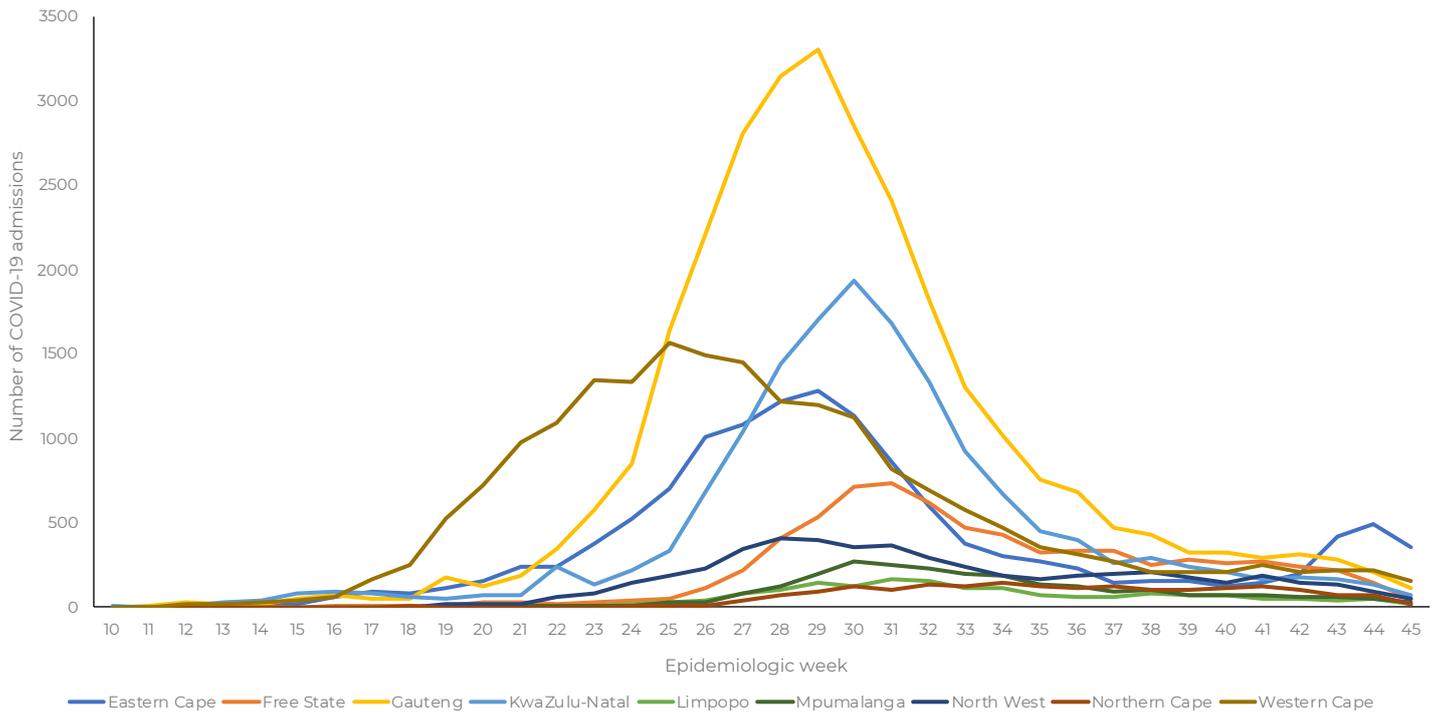


Figure 2. Number of reported COVID-19 admissions, by province and epidemiologic week of diagnosis, South Africa, 5 March-7 November 2020, n=96,399

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

EPIDEMIOLOGICAL AND GEOGRAPHIC TRENDS IN IN-HOSPITAL MORTALITY

Of the 96,399 COVID-19 admissions, there were 16,381 in-hospital deaths. Among 90,012 individuals with in-hospital outcome (died or discharged), the case fatality ratio was 18.3%. Most deaths were initially reported in the public sector, between week 32 and 40 most deaths were reported in the private sector and since then again most deaths have been reported in the public sector. There has been a consistent decrease in reported COVID-19 deaths since week 30 until week 44 which saw an increase public sector deaths (Figure 3).

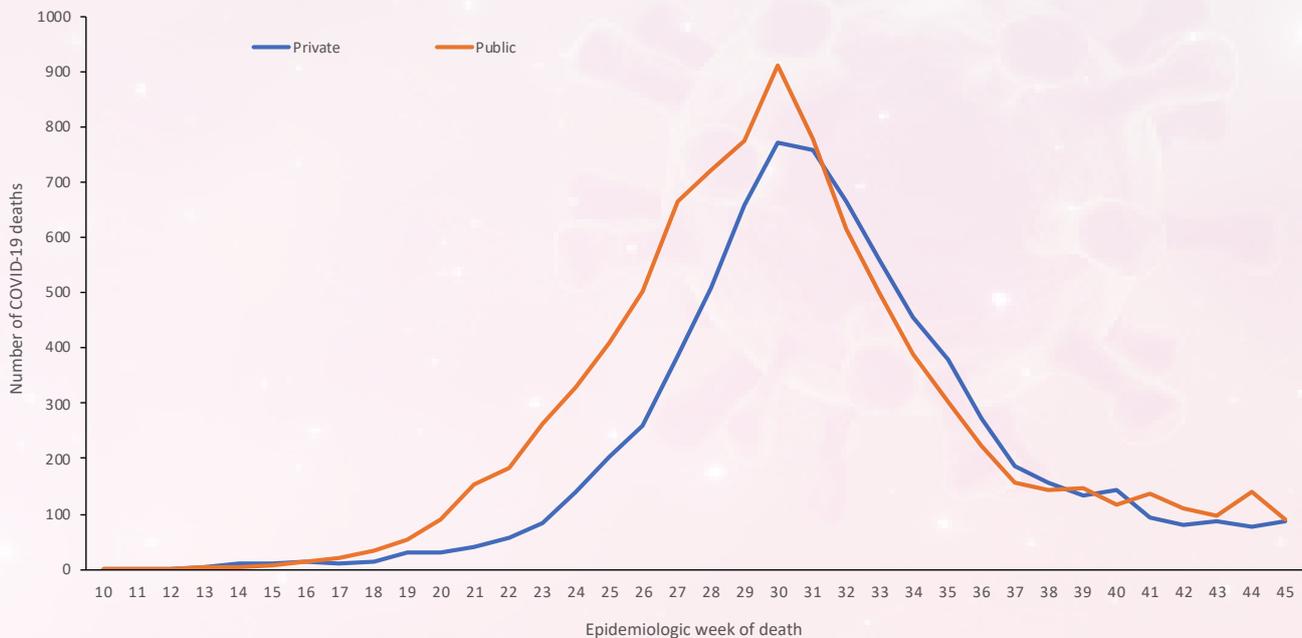


Figure 3. Number of COVID-19 deaths reported per week by health sector and epidemiologic week, South Africa, 5 March-7 November 2020, n=16,381

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

Most deaths were reported in Gauteng (4,035; 24.5%), followed by Western Cape (3,686; 22.4%), Eastern Cape (3,510; 21.3%) and KwaZulu-Natal (2,418; 14.7%) (Figure 4). An increase in deaths was reported in Eastern Cape in week 44.

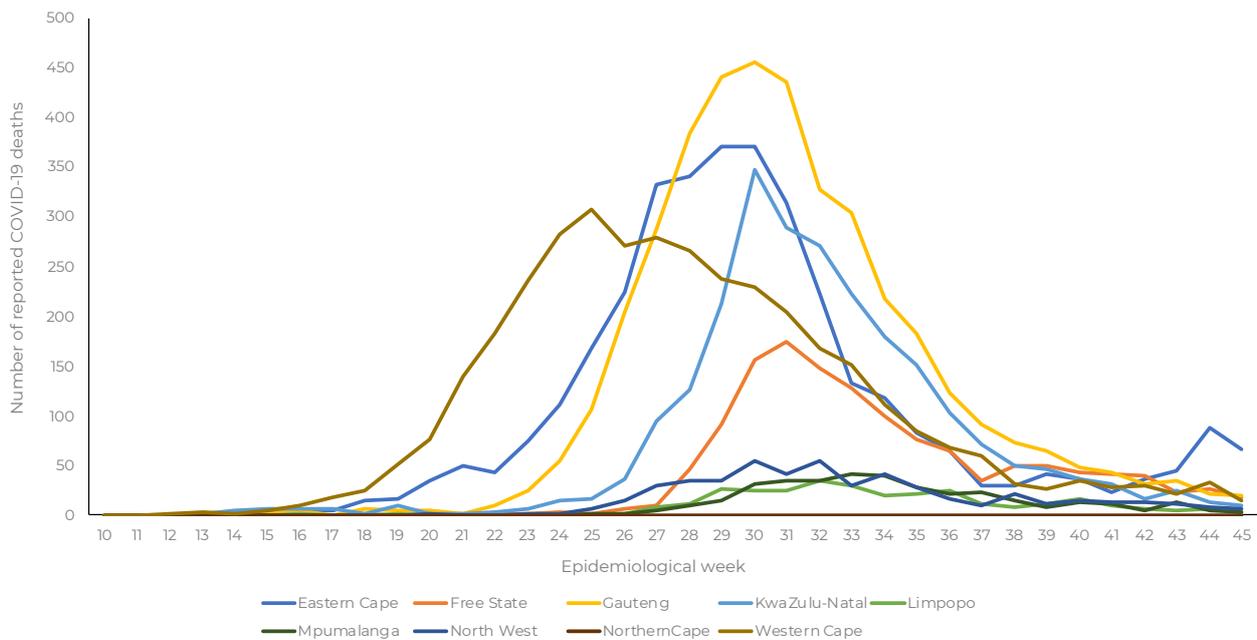


Figure 4. Number of reported COVID-19 deaths, by province and epidemiologic week of death, South Africa, 5 March-7 November 2020, n=16,381

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

The cumulative incidence risks of COVID-19 admissions and deaths were highest in Western Cape, Free State and Eastern Cape provinces (Table 3).

Table 2. Number and cumulative incidence risk of COVID-19 hospitalisations and deaths per 100,000 persons by province, South Africa, 5 March-7 November 2020*

Province	Provincial Population mid 2020*	Cumulative admissions	Cumulative Admissions / 100,000	Cumulative deaths	Cumulative deaths / 100,000
Eastern Cape	6,734,001	13,188	195.8	3,493	51.9
Free State	2,928,903	7,250	247.5	1,341	45.8
Gauteng	15,488,137	29,291	189.1	4,012	25.9
KwaZulu-Natal	11,531,628	15,516	134.6	2,418	21.0
Limpopo	5,852,553	1,768	30.2	305	5.2
Mpumalanga	4,679,786	2,536	54.2	357	7.6
North West	4,108,816	5,097	124.1	499	12.1
Northern Cape	1,292,786	1,951	150.9	271	21.0
Western Cape	7,005,741	19,802	282.7	3,685	52.6
South Africa	59,622,350	96,399	161.7	16,381	27.5

*StatsSA mid-year population estimates 2020

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

DEMOGRAPHIC CHARACTERISTICS OF ADMISSIONS AND DEATHS

The median age of COVID-19 admissions was 52 years (interquartile range [IQR] 38 – 63). Among admitted individuals with COVID-19, 53,728 (55.6%) were female. Most admissions were reported in individuals aged 45 to 64 years (Figure 5).

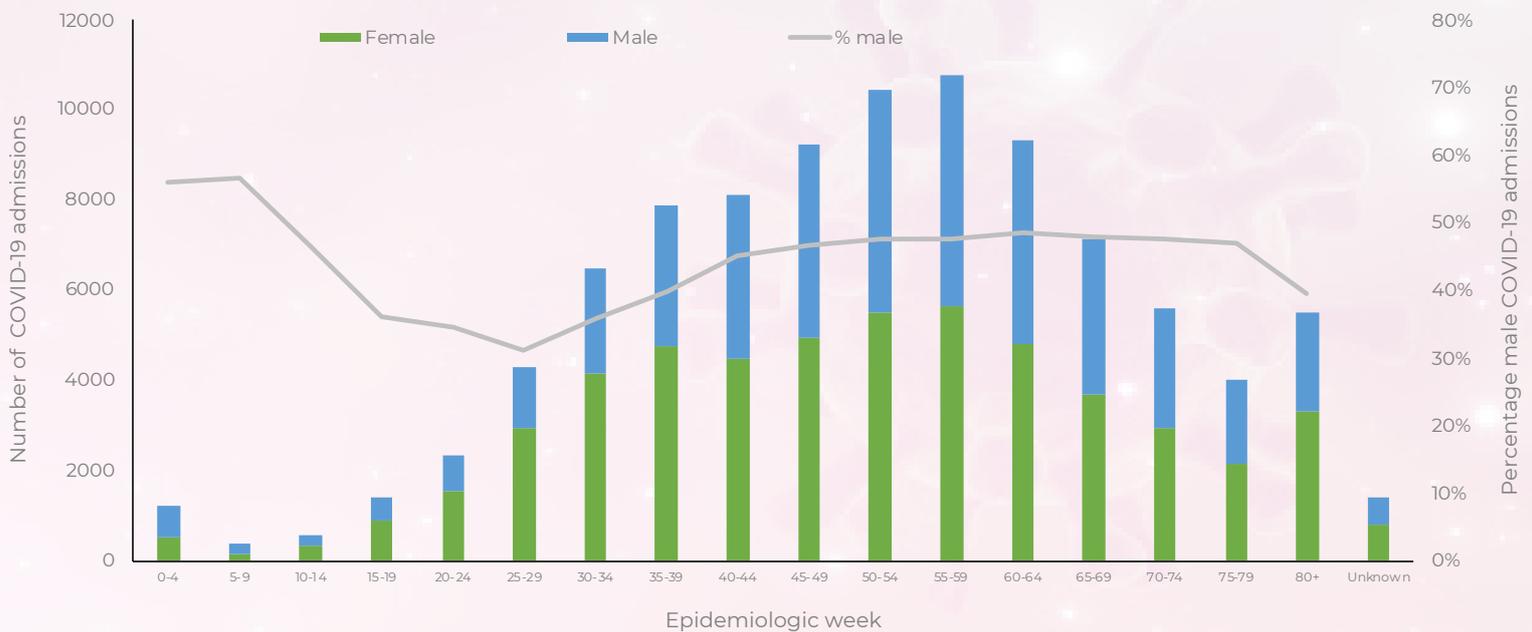


Figure 5: Number of reported COVID-19 admissions by age and gender, South Africa, 5 March-7 November 2020, n=96,399

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

The incidence rate of cumulative admissions for COVID-19 increased with age, was higher in females between 10 and 49 years and higher in males over 50 years (Table 3).

Table 3. Cumulative incidence rate of COVID-19 admissions by age and sex, South Africa, 5 March-7 November 2020

Age Category	FEMALE			MALE		
	Population mid 2020*	Cumulative Admissions	Cumulative Admissions / 100,000	Population mid 2020*	Cumulative Admissions	Cumulative Admissions / 100,000
0-4	2,834,009	534	18.8	2,909,441	675	23.2
5-9	2,820,796	169	6.0	2,895,156	220	7.6
10-14	2,769,792	318	11.5	2,821,761	273	9.7
15-19	2,371,692	895	37.7	2,402,887	502	20.9
20-24	2,398,166	1,529	63.8	2,425,201	807	33.3
25-29	2,680,316	2,964	110.6	2,740,438	1,336	48.8
30-34	2,783,148	4,150	149.1	2,858,602	2,320	81.2
35-39	2,393,741	4,744	198.2	2,404,552	3,125	130.0
40-44	1,896,907	4,471	235.7	1,837,035	3,665	199.5
45-49	1,623,621	4,942	304.4	1,546,027	4,305	278.5
50-54	1,392,029	5,485	394.0	1,179,234	4,959	420.5
55-59	1,240,292	5,664	456.7	971,017	5,112	526.5
60-64	1,038,455	4,810	463.2	757,861	4,516	595.9
65-69	836,829	3,703	442.5	571,836	3,416	597.4
70-74	619,184	2,934	473.8	387,990	2,669	687.9
75-79	403,457	2,136	529.4	233,605	1,897	812.1
80+	391,041	3,338	853.6	186,232	2,184	1,172.7

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

The median age of patients who died was 63 (IQR 53 – 72) years, and for those who were discharged alive was 49 (IQR 36 – 60) years. More deaths occurred in individuals over 55 years and in males (Figure 6).

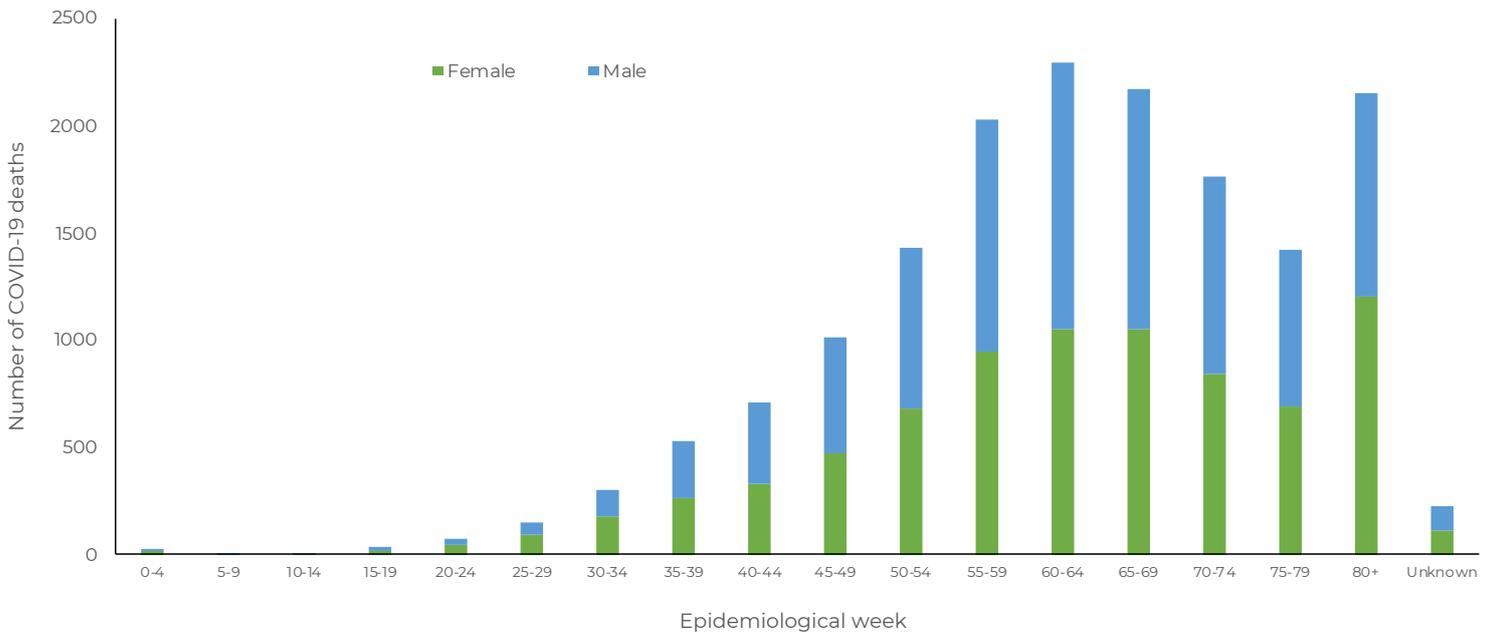


Figure 6: Number of reported COVID-19 deaths by age and gender, South Africa, 5 March-7 November 2020, n=16,381

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

The incidence rate of cumulative deaths for COVID-19 increased with age, was roughly equal between males and females of younger ages and higher in males over 40 years (Table 4).

Table 4. Cumulative incidence rate of COVID-19 deaths by age and sex, South Africa, 5 March-7 November 2020

Age Category	FEMALE			MALE		
	Population mid 2020*	Cumulative Deaths	Cumulative Deaths / 100,000	Population mid 2020*	Cumulative Deaths	Cumulative Deaths / 100,000
0-4	2,834,009	14	0.5	2,909,441	12	0.4
5-9	2,820,796	2	0.1	2,895,156	5	0.2
10-14	2,769,792	4	0.1	2,821,761	7	0.2
15-19	2,371,692	14	0.6	2,402,887	26	1.1
20-24	2,398,166	45	1.9	2,425,201	30	1.2
25-29	2,680,316	93	3.5	2,740,438	58	2.1
30-34	2,783,148	183	6.6	2,858,602	121	4.2
35-39	2,393,741	268	11.2	2,404,552	259	10.8
40-44	1,896,907	332	17.5	1,837,035	379	20.6
45-49	1,623,621	478	29.4	1,546,027	536	34.7
50-54	1,392,029	680	48.8	1,179,234	755	64.0
55-59	1,240,292	948	76.4	971,017	1,082	111.4
60-64	1,038,455	1,049	101.0	757,861	1,248	164.7
65-69	836,829	1,054	126.0	571,836	1,113	194.6
70-74	619,184	843	136.1	387,990	920	237.1
75-79	403,457	690	171.0	233,605	735	314.6
80+	391,041	1,208	308.9	186,232	946	508.0

*StatsSA mid-year population estimates 2020

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

TRENDS IN ADMISSIONS

The number of COVID-19 admissions decreased in all provinces from week 44 to week 45. The highest proportion of new admissions and the highest incidence risk of new admissions was in Eastern Cape (Table 5).

Table 5: Percentage change in COVID-19 admissions and deaths, epidemiological week 44 to week 45, by province, South Africa, 5 March-7 November 2020

Province	Hospital admissions		Percentage change in admissions	Percentage of total new admissions	Incidence risk of new admissions /100,000 persons
	Week 44	Week 45			
Eastern Cape	530	358	-32	37.5	5.3
Free State	144	60	-58	6.3	2.0
Gauteng	220	132	-40	13.8	0.9
KwaZulu-Natal	143	75	-48	7.9	0.7
Limpopo	51	27	-47	2.8	0.5
Mpumalanga	52	32	-38	3.4	0.7
North West	94	62	-34	6.5	1.5
Northern Cape	64	25	-61	2.6	1.9
Western Cape	234	183	-22	19.2	2.6
South Africa	1,532	954	-38	100.0	1.6

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

There were only three districts across the country that reported increased number of admissions from week 44 to week 45, i.e. Overberg and Central Karoo district in Western Cape, and Ekurhuleni Metro in Gauteng (Table 6).

Table 6: Districts with positive increases in admissions week 44 to week 45

Districts	Cumulative hospital admissions	Hospital admissions		Percentage change in admissions
		Week 44	Week 45	
Overberg	365	3	7	133
Central Karoo	133	1	2	100
Ekurhuleni Metro	6,494	15	23	53

CURRENT TRENDS IN EASTERN CAPE

Since mid-October there has been an increase in admissions reported in the Eastern Cape, seen across both public and private sector (Figure 7).

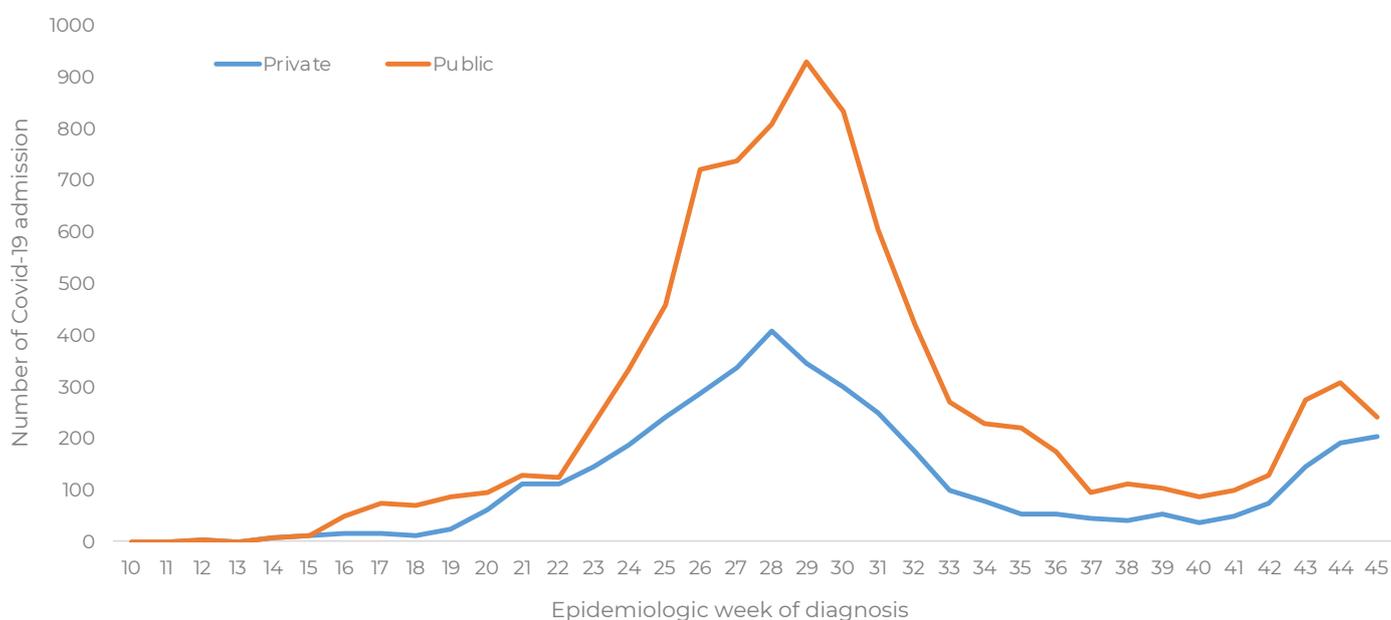


Figure 7: Number of reported COVID-19 admissions by health sector and epidemiologic week of diagnosis, Eastern Cape, 5 March-7 November 2020

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

The increase in admissions in Eastern Cape is driven predominantly by admissions in Nelson Mandela Metro (Figure 8). The apparent decrease in admissions in this district in the past week is possibly related to delays in reporting.

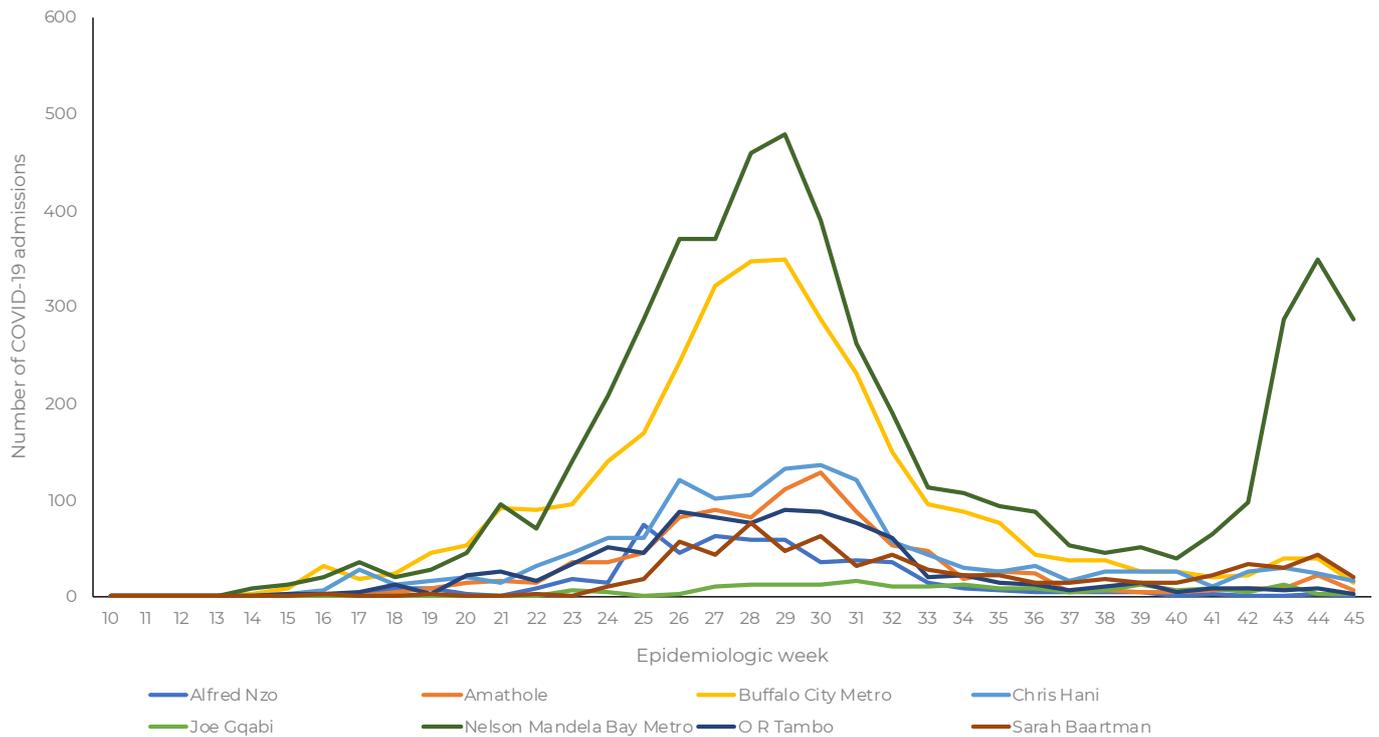


Figure 8: Number of reported COVID-19 admissions, by district and epidemiologic week, Eastern Cape, 5 March-7 November 2020

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

The number of COVID-19 admissions decreased in all Eastern Cape districts from week 44 to week 45, possibly due to delays in reporting. The highest proportion of new admissions and the highest incidence risk of new admissions was in Nelson Mandela Metro (Table 7).

Table 7. Percentage change in COVID-19 admissions and deaths, epidemiologic week 44 to week 45, by district, Eastern Cape, 5 March-7 November 2020

District	Cumulative hospital admissions	Admissions Week 44	Admissions Week 45	Percentage change in admissions	Percentage of total new admissions	Incidence risk of new admissions /100 000 persons
Alfred Nzo	528	2	1	-50	0.3	0.0
Amathole	1,005	23	6	-74	1.7	0.2
Buffalo City Metro	3,271	41	15	-63	4.2	0.5
Chris Hani	1,399	28	13	-54	3.6	0.5
Joe Gqabi	189	5	1	-80	0.3	0.1
Nelson Mandela Bay Metro	5,177	382	298	-22	83.2	6.9
O R Tambo	919	7	4	-43	1.1	0.1
Sarah Baartman	700	42	20	-52	5.6	1.2

The increase in admissions is reported across most hospitals in Nelson Mandela Metro (Figure 9). Three private hospitals are experiencing a surge as large as the previous peak in admissions in July. Two public hospital also demonstrate large increases as well as the field hospital which has admitted 134 patients in the past week, with more admissions than in the previous months.

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

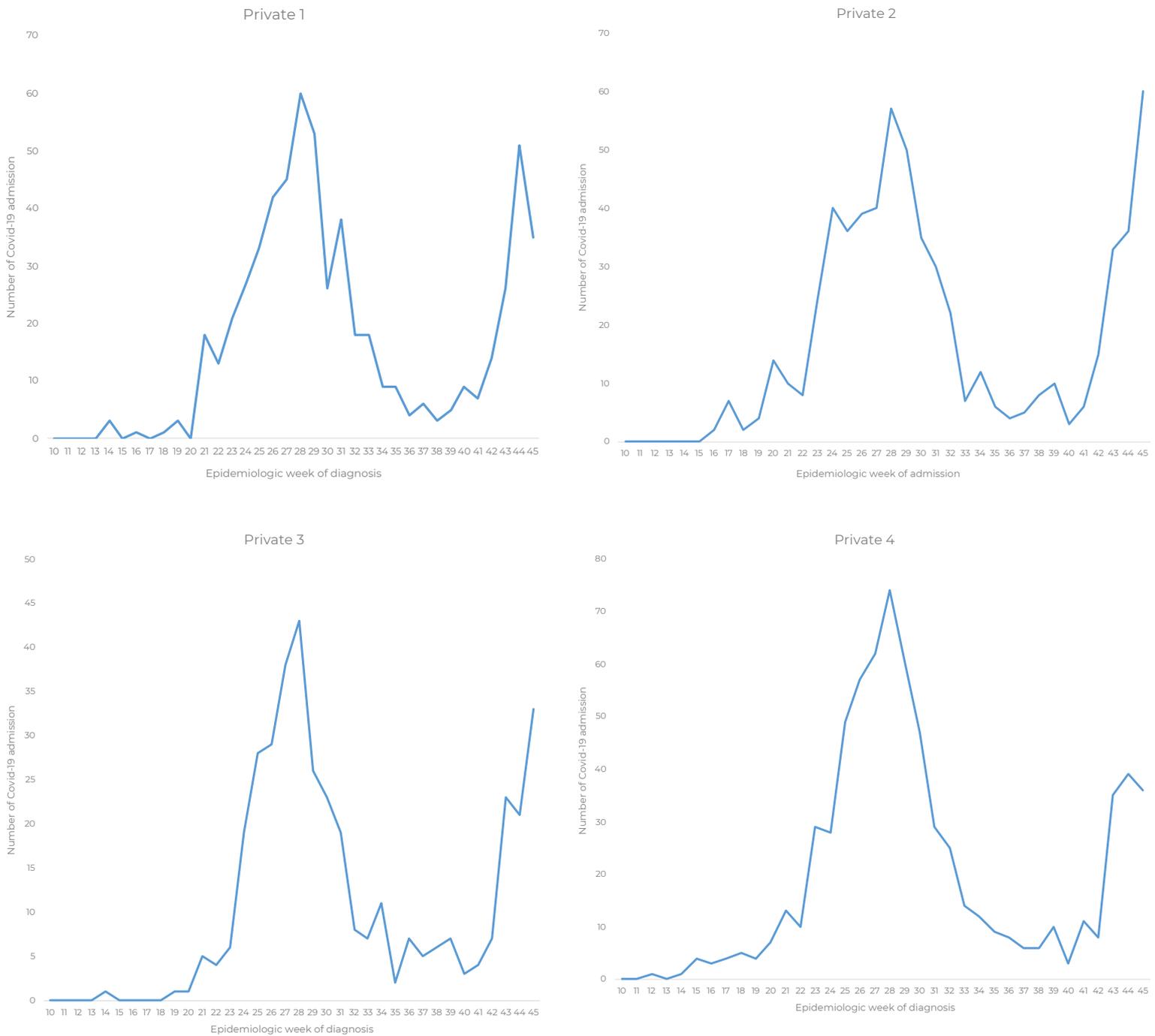


Figure 9: Number of reported COVID-19 admissions, by hospital and epidemiologic week of diagnosis, Nelson Mandela Metro, 5 March-7 November 2020

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

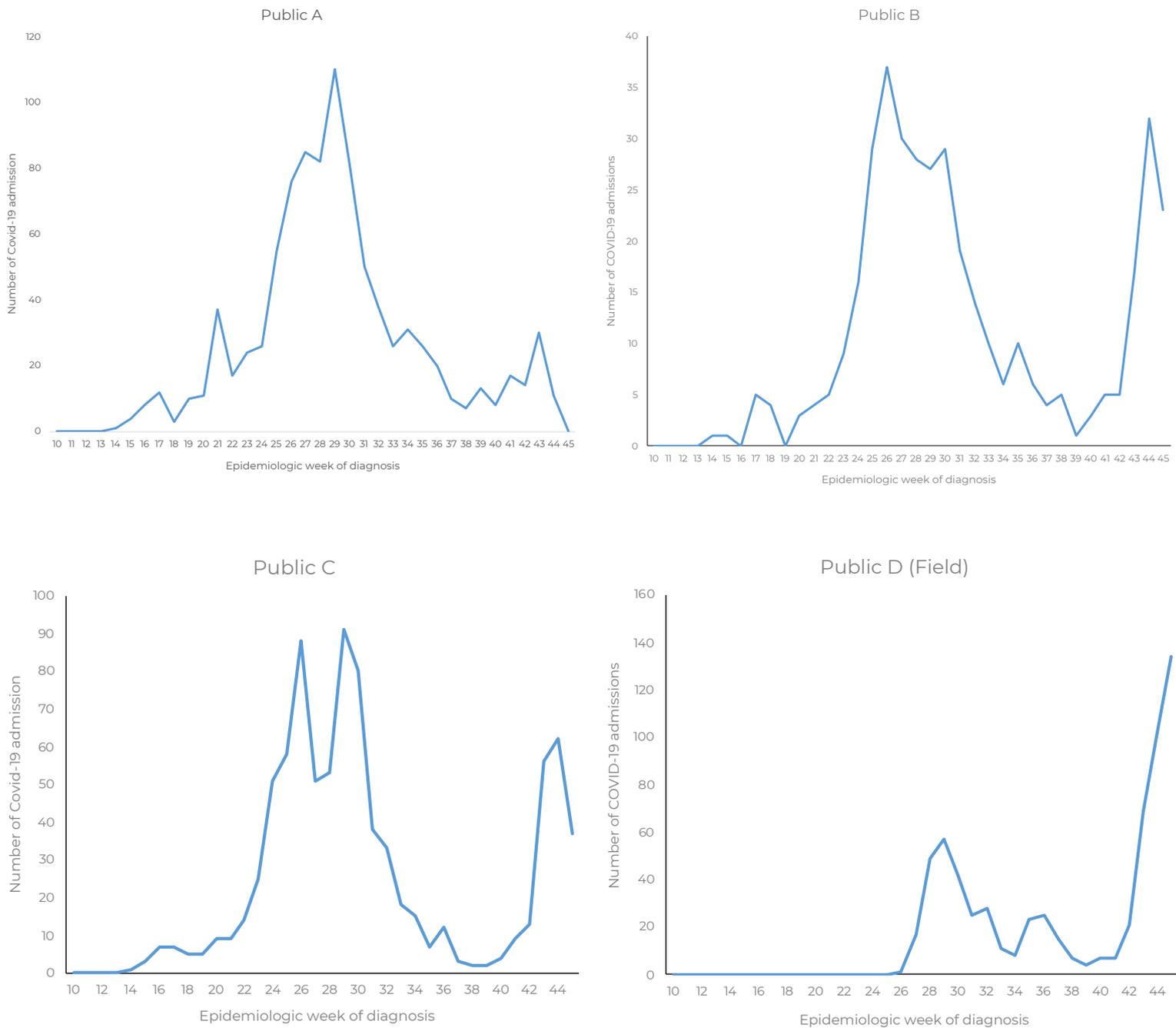


Figure 9: Number of reported COVID-19 admissions, by hospital and epidemiologic week of diagnosis, Nelson Mandela Metro, 5 March-7 November 2020

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

Since the beginning of the epidemic, most admissions in Nelson Mandela Metro have been for COVID-19 symptoms. In the past four week, in 305 patients who had reason for admission recorded in Nelson Mandela Metro, 294 (96.4%) were admitted for COVID-19 symptoms, 11 (3.6%) for other clinical reasons and none for isolation (Figure 10).

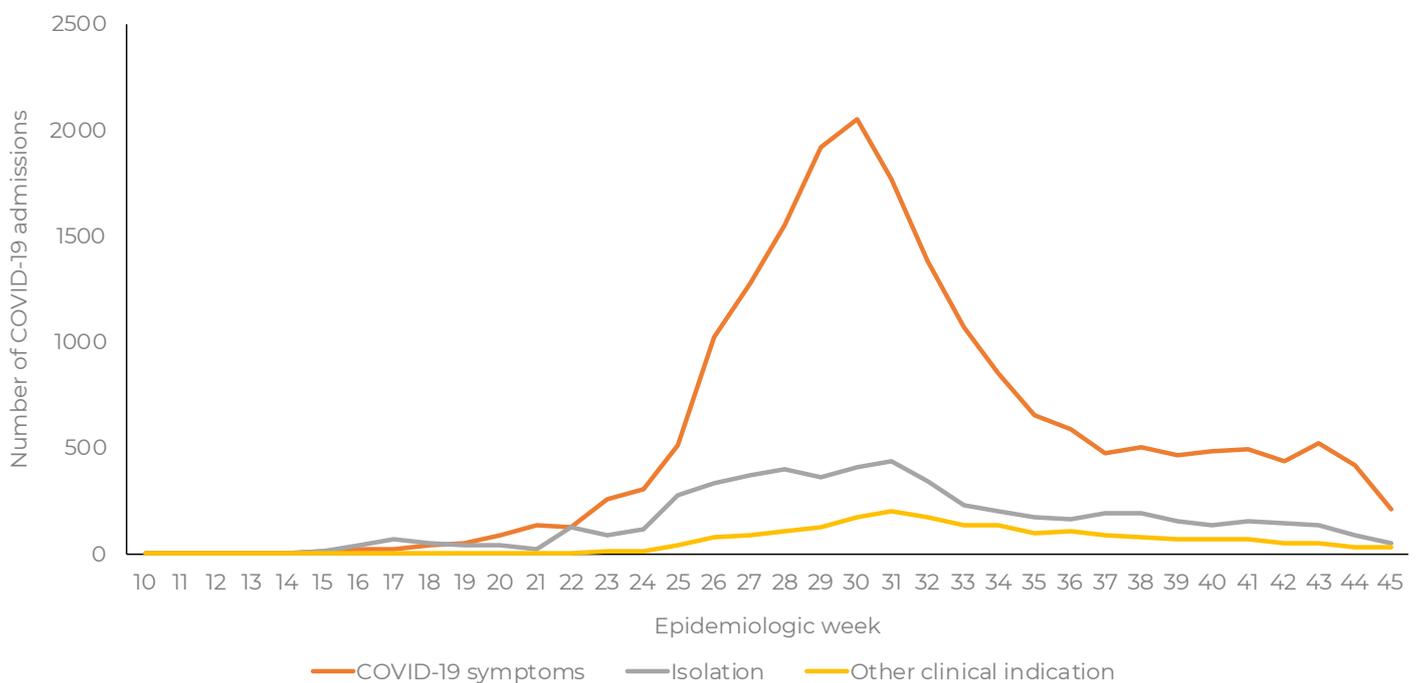


Figure 10: Reason for admission by epidemiologic week, Nelson Mandela Metro, 5 March-7 November 2020

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

There has been an increase in deaths in Eastern Cape, driven predominantly by deaths in Nelson Mandela Metro (Figure 11). The apparent decrease in deaths in this district in the past week is possibly related to delays in reporting.

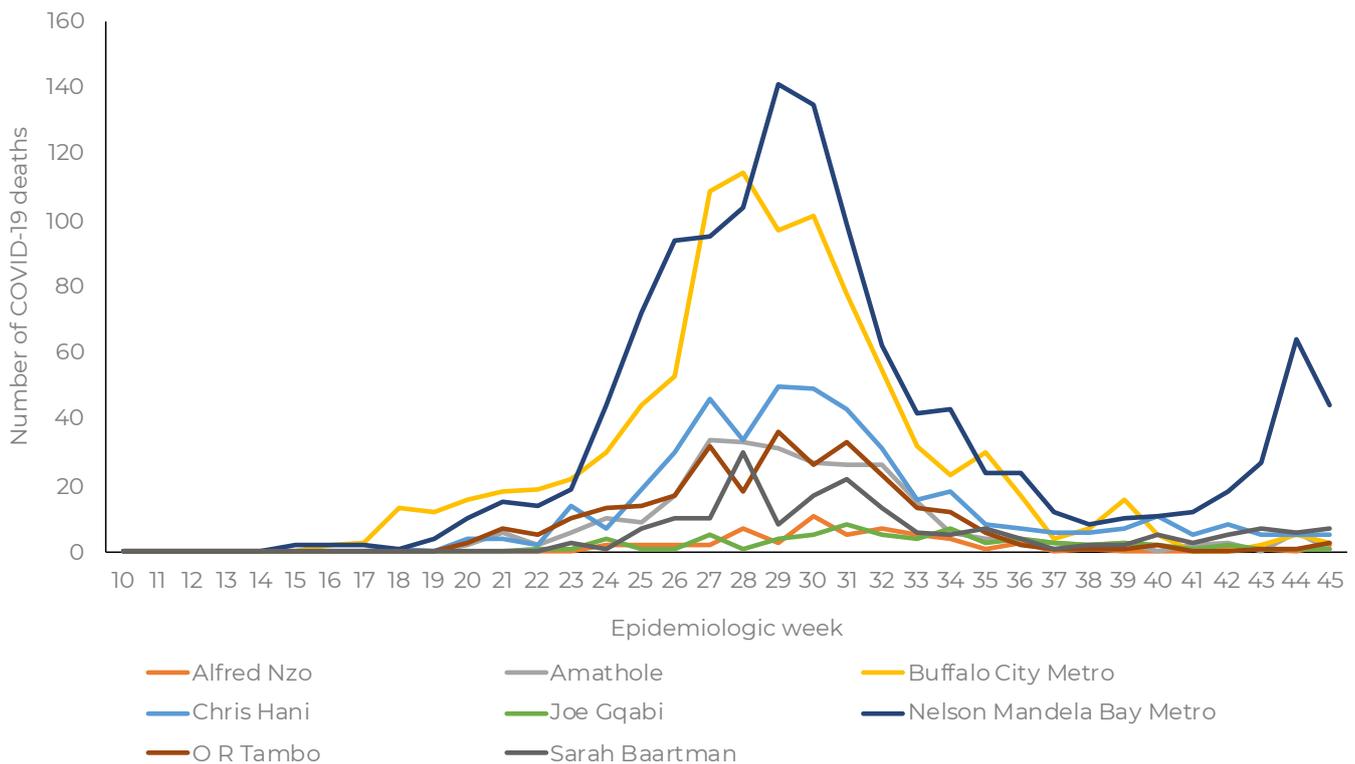


Figure 11: Number reported COVID-19 deaths, by district and epidemiologic week, Eastern Cape, 5 March-7 November 2020

LIMITATIONS

DATCOV now includes reporting from all hospitals with COVID-19 admissions but many hospitals are yet to reach complete submission of historic data. DATCOV only reports hospital-based admissions and deaths and therefore does not include deaths occurring outside hospitals. Data quality in a surveillance system is dependent on the information submitted by healthcare institutions. It is not possible for the NICD to verify or check the quality of all these data, however, the NICD has built-in data quality checks.

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

ACKNOWLEDGEMENTS

All public and private sector hospitals submitting data to DATCOV

Private hospital groups submitting data to DATCOV:

- Netcare
- Life Healthcare
- Mediclinic Southern Africa
- National Hospital Network (NHN)
- Clinix Health Group
- Lenmed
- Joint Medical Holdings (JMH)

COVID-19 SENTINEL HOSPITAL SURVEILLANCE UPDATE

WEEK 45 2020

APPENDIX

Table 8: Number of reported COVID-19 admissions and deaths by age and gender, South Africa, 5 March-7 November 2020

Age (years)	ADMISSIONS				DEATHS			
	Female	Male	Unknown	Total	Female	Male	Unknown	Total
0-4	534	675	1	1,210	14	12	0	26
5-9	169	220	0	389	2	5	0	7
10-14	318	273	0	591	4	7	0	11
15-19	895	502	1	1,398	14	26	0	40
20-24	1,529	807	2	2,338	45	30	0	75
25-29	2,964	1,336	1	4,301	93	58	1	152
30-34	4,150	2,320	2	6,472	183	121	0	304
35-39	4,744	3,125	2	7,871	268	259	0	527
40-44	4,470	3,664	5	8,139	332	379	0	711
45-49	4,942	4,304	5	9,251	478	536	0	1,014
50-54	5,485	4,959	2	10,446	680	755	0	1,435
55-59	5,664	5,112	2	10,778	948	1,082	0	2,030
60-64	4,810	4,516	1	9,327	1,049	1,248	0	2,297
65-69	3,703	3,416	0	7,119	1,054	1,113	0	2,167
70-74	2,934	2,669	1	5,604	843	920	1	1,764
75-79	2,136	1,897	0	4,033	690	735	0	1,425
80-84	1,670	1,207	1	2,878	572	492	0	1,064
85-89	1,032	619	0	1,651	364	286	0	650
90-94	493	268	0	761	215	143	0	358
>95	143	89	0	232	57	25	0	82
Unknown	782	629	110	1,521	109	120	1	230
	53,567	42,607	136	96,310	8,014	8,352	3	16,369