

## COVID-19 Sentinel Hospital Surveillance Update: Week 20, 2020

### Overview of report

This report summarises data of COVID-19 cases admitted to sentinel hospital surveillance sites in all provinces. The report is based on data collected from 5 March to 18 May 2020.

### Highlights

- As of 18 May, 2,115 COVID-19 admissions were reported from 202 facilities (52 public-sector and 150 private-sector) in all nine provinces of South Africa. Half of reported admissions were reported from public sector 50% (1052/2115). The majority of COVID-19 admissions were reported from three provinces, 1278 (60%) in Western Cape, 267 (13%) in KwaZulu-Natal and 262 (12%) in Gauteng.
- The median age of COVID-19 admissions was 49 years; 86 (4%) admissions in patients <20 years and 305 (14%) in >70 years. Fifty six percent (1180/2115) were female.
- Among 1141 (54%) patients with data on comorbid conditions; 724 (63%) had one or more comorbid condition, of these 61% (443/724) had two or more comorbid conditions. Most commonly reported comorbid conditions were hypertension 317/724 (44%) and diabetes 239/724 (33%). There were 75 (10%) patients admitted with HIV and 15 (2%) with active tuberculosis.
- A total of 619 (29%) patients had severe disease.
- Of the 2115 admissions, 259 (12%) patients had died, 1189 (56%) patients were discharged alive or transferred to other facilities and 667 (32%) patients were currently in hospital at the time of this analysis. On multivariable analysis, patients who died were more likely to be in older age groups, 40-64 years (136/1030, 13.2%; aOR 4.6; 95% CI 2.7-8.0) or ≥65 years (108/443, 24.4%; aOR 8.9; 95% CI 5.0-15.7) as compared to <40 years; to be male (139/935, 14.9%; aOR 1.4, 95% CI 1.1-1.9); and to have one or more comorbid condition (53/281, 18.9%; aOR 3.1; 95% CI 1.8-5.3) or (106/443, 23.9%; aOR 3.5; 95% CI 2.1-5.9), respectively.

## Methods

DATCOV19, sentinel hospital surveillance for COVID-19 admissions, was initiated on the 1 April 2020. Data are submitted by public and private hospitals that have agreed to report COVID-19 admissions through DATCOV19 surveillance in all nine provinces of South Africa (Table 3). 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 DATCOV19 sentinel hospital. An individual was defined as having severe disease if treated in high care or ICU, or ventilated or diagnosed with acute respiratory distress syndrome (ARDS).

Data on hospitalised cases who were diagnosed with COVID-19 from 5 March to 18 May 2020 were collected. Data are received from all private hospitals nationally, and a subset of public hospitals in all nine provinces (data are received from all public hospitals in the Western Cape (WC) Province). As of 18 May 2020, a total of 202 facilities, 150 from private sector and 52 from public sector, submitted data on hospitalised COVID-19 cases (Table 1).

**Table 1:** Number of hospitals reporting data on COVID-19 admissions by province and sector, South Africa, 5 March-18 May 2020

<b>Name of province</b>	<b>Public Sector</b>	<b>Private Sector</b>
Eastern Cape (EC)	5	10
Free State (FS)	2	6
Gauteng (GP)	3	56
KwaZulu-Natal (KZN)	4	31
Limpopo (LP)	1	4
North West (NW)	2	7
Northern Cape (NC)	1	4
Western Cape (WC)	34	30
Mpumalanga (MP)	0	2
<b>South Africa</b>	<b>52</b>	<b>150</b>

## Results

From 5 March to 18 May, a total of 2115 COVID-19 admissions were reported from 202 facilities in all nine provinces of South Africa. Of these admissions, 1063 (50.3%) and 1052 (49.7%) were reported in private and public sector, respectively (Figure 1). The majority of admissions (1807/2115, 85.4%) were recorded in three provinces, with the highest number (1278/2115, 60.4%) reported in Western Cape (WC), followed by (267/2115, 12.6%) in KwaZulu-Natal (KZN), and (262/2115; 12.4%) in Gauteng (GP) provinces (Figure 1).

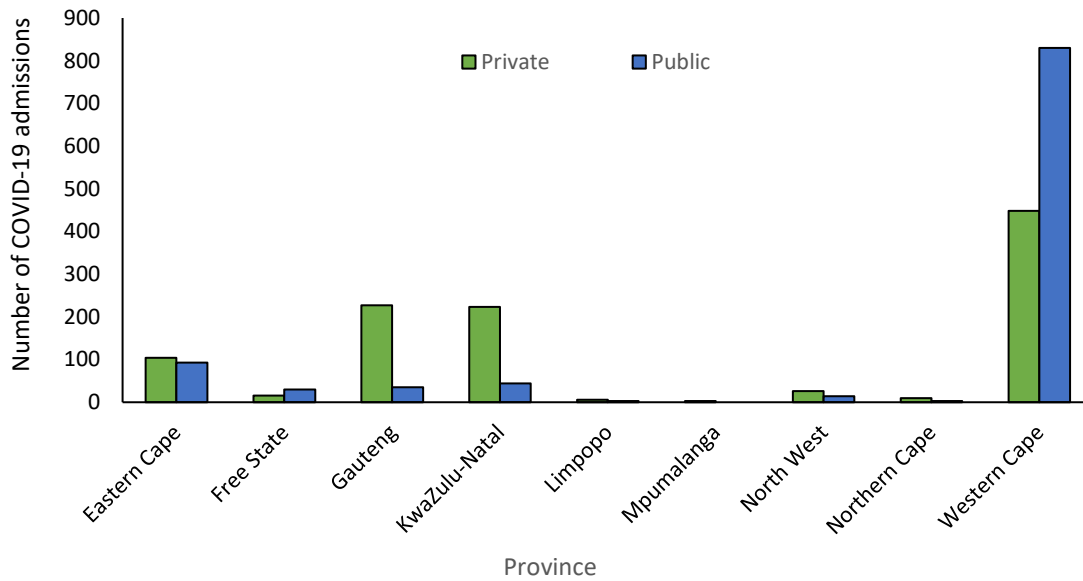


Figure 1: Number of reported COVID-19 admissions by province and health-sector, South Africa, 5 March-18 May 2020, n=2115

Initially, most reported admissions were in the private sector, however as from week 16 increasing proportion of total admissions was reported in the public sector (Figure 2).

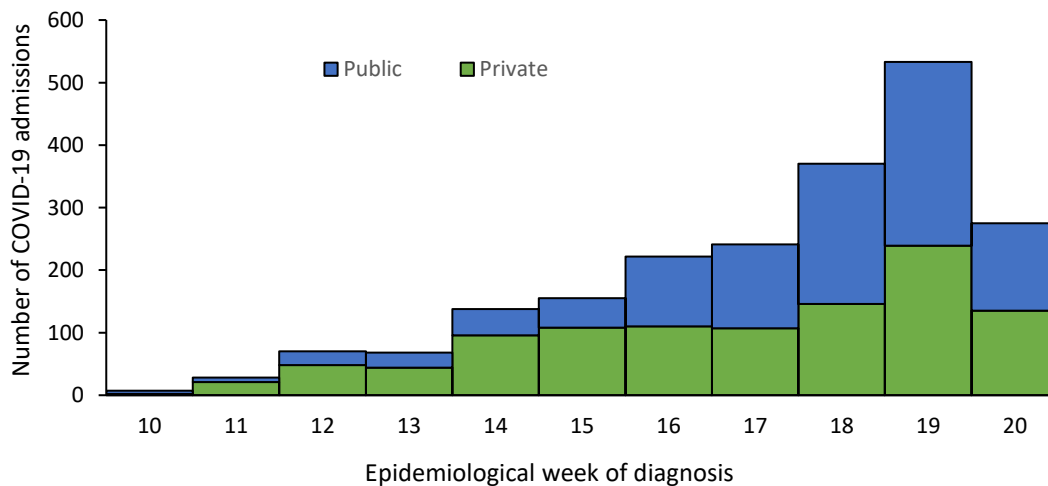


Figure 2: Number of reported COVID-19 admissions by health sector and epidemiologic week of diagnosis, 5 March-18 May 2020, n=2115

## Demographic and clinical characteristics of COVID-19 admissions

The median age of COVID-19 admissions was 49 years (interquartile range [IQR] 37 – 62). There were 86 (4.1%) admissions in patients younger than 20 years and 305 (14.4%) in patients older than 70 years (Figure 3). Among admitted individuals with COVID-19, 1,180 (55.8%) were female. The sex

ratio varied by age group with females more common than males in all age groups except in patients younger than 10 years (Figure 3).

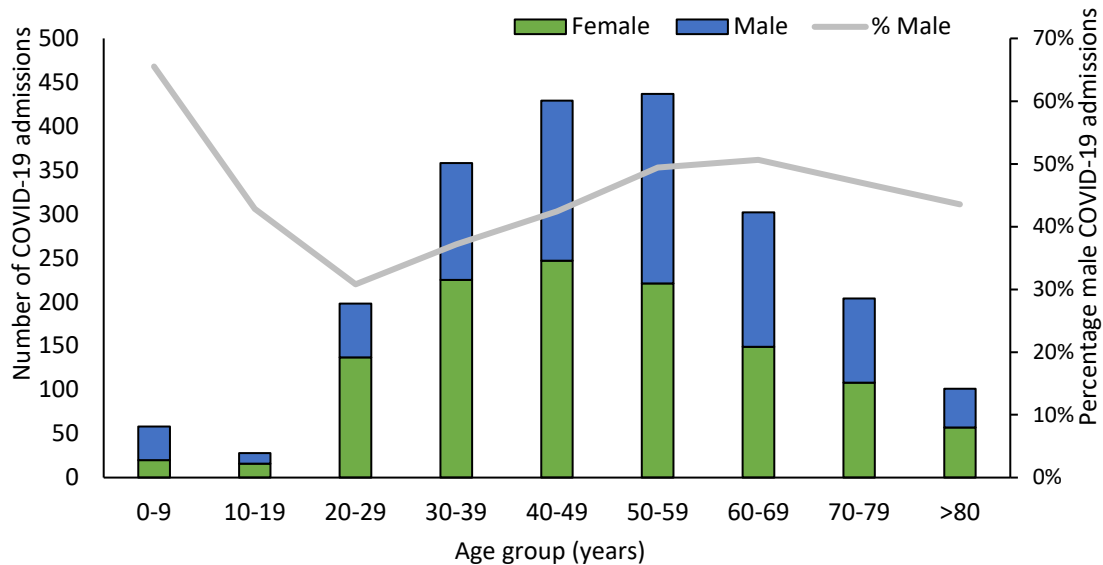


Figure 3: Number of reported COVID-19 admissions by age, gender and percentage of males, South Africa, 5 March-18 May 2020 (n=2115)

Of the 1,031 (48.7%) patients for whom race was known, 631 (61.2%) were Black African, 186 (18.0%) were Coloured, 71 (6.9%) were Indian and 143 (13.9%) were White. There were 144 (6.8%) health care workers (HCW) that were reported to be hospitalised. Among the 1,180 female admissions, there were 38 (3.2%) females admitted who were pregnant or within 6 weeks post-partum.

Of the 1141 (53.9%) patients for whom comorbid disease was known, 417/1141 (36.6%) had no comorbid disease reported, 281/1141 (24.6%) had one comorbid disease reported and 443/1141 (38.8%) had two or more comorbid diseases reported. Among the 724 patients who had reported a comorbid condition, the most commonly reported comorbid conditions were hypertension (317/724, 43.8%) and diabetes (239/724, 33.0%). There were 75 (10.4%) patients who were HIV-infected, 15 (2.1%) patients with active tuberculosis (TB) and 15 (2.1%) patients with previous history of TB (Table 2).

**Table 2:** Reported comorbid diseases among COVID-19 admissions reporting at least one comorbid disease, South Africa, 5 March-18 May 2020 (n=724)

<b>Comorbid disease*</b>	<b>n (%)</b>
Hypertension	317 (43.8)
Diabetes mellitus	239 (33.0)
Chronic cardiac disease	52 (7.2)
Chronic pulmonary disease	30 (4.1)
Asthma	57 (7.9)
Chronic renal disease	40 (5.5)
Malignancy	20 (2.8)
HIV	75 (10.4)
Active TB	15 (2.1)
Previous history of TB	15 (2.1)

\* Multiple comorbid conditions would be counted more than once so the total number may be more than the total number of individuals reporting comorbid conditions

## Clinical management of COVID-19 hospitalised patients

Of the 667 COVID-19 patients currently in-hospital, 30 (4.5%) were being treated in isolation wards, 448 (67.2%) in general wards, 62 (9.3%) in high care wards and 127 (19.0%) in Intensive Care Unit (ICU). There were 68 (10.2%) patients currently ventilated and 201 (30.1%) currently on supplementary oxygen.

## Disease Severity

Of the 2,115 COVID-19 admissions to date, 619 (29.3%) met the criteria for severe disease. The median age of patients who had severe disease was 53 (IQR 44 – 65) years; compared to 46 (IQR 34 – 60) years for those who did not have severe disease. The proportion of reported in-patients who were treated in ICU and ventilated in each epidemiological week has decreased in the past six weeks (Figure 4).

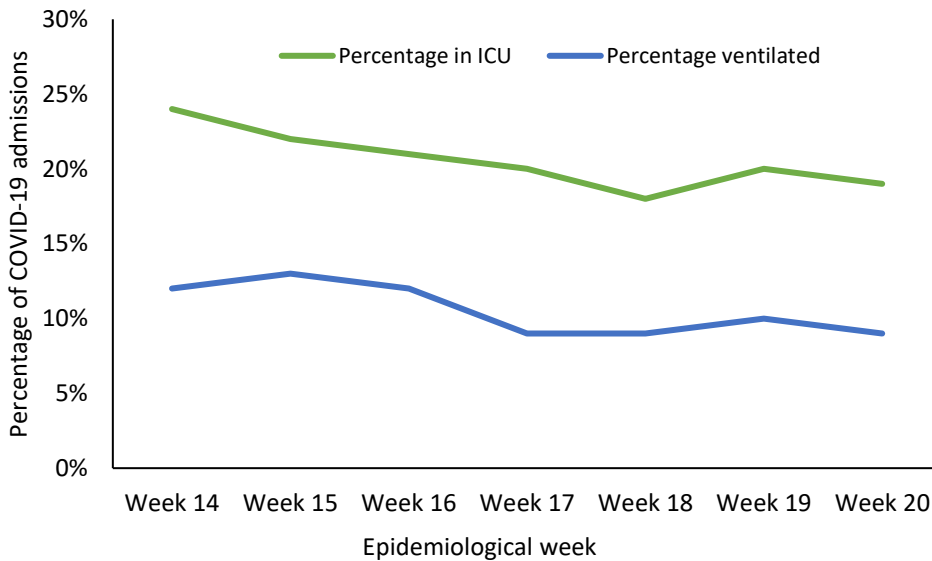


Figure 4: Proportion of COVID-19 in-patients treated in intensive care unit (ICU) and ventilated by epidemiological week, South Africa, 5 March-18 May 2020

## Outcomes

Of the 2,115 admitted individuals, 1,152 (54.5%) were discharged alive, 37 (1.8%) were transferred out to either higher level care or step-down facilities, 259 (12.3%) had died and 667 (31.5%) were currently in hospital. The median length of stay (LOS) from admission to outcome was 6 (range 0 – 122) days for those that were alive (discharged, transferred out and in-hospital) and 6 (0 – 130) days for patients that died. Prolonged hospitalisations were in individuals with nosocomial COVID-19 acquisition.

## Mortality

Of the 2,115 COVID-19 patients admitted, 259 died, case fatality ratio (CFR) 12.3%. In the first few weeks of the outbreaks most deaths were reported in the private sector but in recent weeks an increasing proportion of reported deaths was in the public sector. Week 20 saw a decline, compared to previous week, in the number of reported deaths from COVID-19 in sentinel surveillance sites (Figure 5).

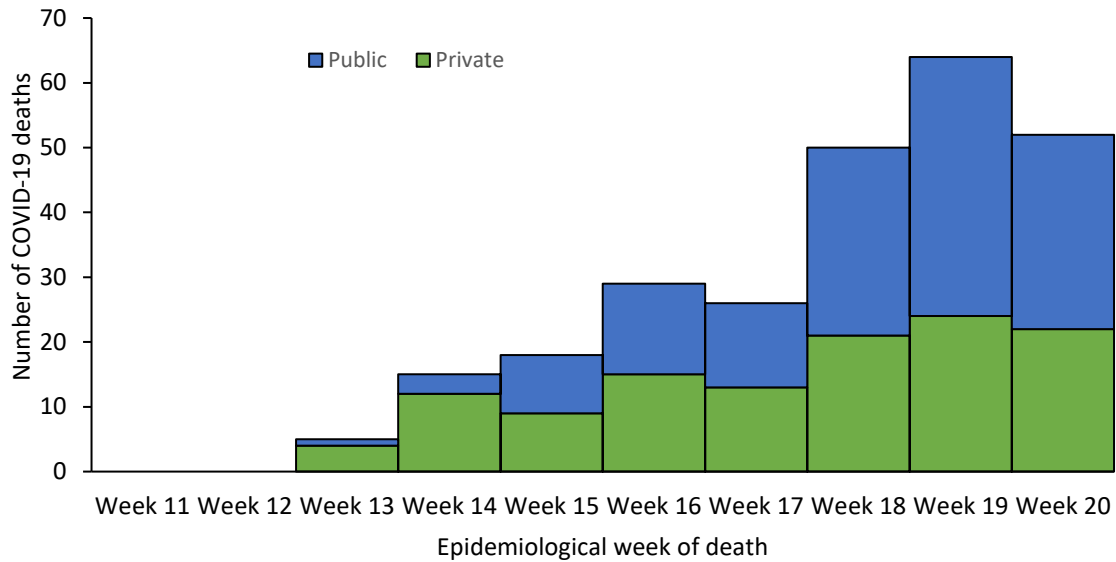


Figure 5: Number of COVID-19 deaths reported per week by health sector and epidemiologic week, South Africa, 5 March – 18 May 2020, n=2115

The median age of patients who died was 61 (IQR 51 – 71) years, and for those who were still alive was 47 (IQR 35 – 59) years. On multivariable analysis, patients who died were more likely to be in older age groups, 40-64 years (136/1030, 13.2%; aOR 4.6; 95% CI 2.7-8.0) and  $\geq 65$  years (108/443, 24.4%; aOR 8.9; 95% CI 5.0-15.7) as compared to <40 years; male sex (139/935, 14.9%; OR 1.4, 95% CI 1.1-1.9); and have one comorbid condition (53/281, 18.9%; aOR 3.1; 95% CI 1.8-5.3) or two or more comorbid conditions (106/443, 23.9%; aOR 3.5; 95% CI 2.1-5.9), respectively (Table 4).

**Table 4:** Univariate and multivariable analysis of factors associated with mortality among 2115 admissions, South Africa, 5 March-18 May 2020

Characteristic	Mortality n/N (%)	Alive n/N (%)	Unadjusted OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value
Age group						
<40 years	15/642 (2.3)	627/642 (97.7)	Reference		Reference	
40-64 years	136/1030 (13.2)	894/1030 (86.8)	6.4 (3.7-10.9)	<0.001	4.6 (2.7-8.0)	<0.001
≥65 years	108/443 (24.4)	335/443 (75.6)	13.5 (7.7-23.5)	<0.001	8.9 (5.0-15.7)	<0.001
Male sex	139/935 (14.9)	796/935 (85.1)	1.5 (1.2-2.0)	0.001	1.4 (1.1-1.9)	0.014
Ethnicity						
Black	68/631 (10.8)	563/631 (89.2)	Reference			
Coloured	20/186 (10.8)	166/186 (89.2)	1.0 (0.6-1.7)	0.993		
Indian	9/71 (12.7)	62/71 (87.3)	1.2 (0.6-2.5)	0.628		
White	14/143 (9.8)	129/143 (90.2)	0.9 (0.5-1.6)	0.729		
Unknown	148/1084 (13.7)	936/1084 (86.3)	1.3 (1.0-1.8)	0.084		
HCW	2/144 (1.4)	142/144 (98.6)	0.1 (0.0-0.4)	0.001		
Peri-partum	0/38 (0)	38/38 (100.0)	-	-		
Comorbid condition						
No co-morbidity	20/417 (4.8)	397/417 (95.2)	Reference		Reference	
1 co-morbid condition	53/281 (18.9)	228/281 (81.1)	4.6 (2.7-7.9)	<0.001	3.1 (1.8-5.3)	<0.001
≥2 comorbid conditions	106/443 (23.9)	337/443 (76.1)	6.2 (3.8-10.3)	<0.001	3.5 (2.1-5.9)	<0.001
Unknown	80/974 (8.2)	894/974 (91.8)	1.8 (1.1-2.9)	0.025	1.4 (0.9-2.4)	0.174
Public sector	139/1052 (13.2)	913/1052 (86.8)	1.2 (0.9-1.6)	0.178		
Province						
Eastern Cape	31/197 (15.7)	166/197 (84.3)	Reference			
Free State	5/46 (10.9)	41/46 (89.1)	0.7 (0.2-1.8)	0.406		
Gauteng	20/262 (7.6)	242/262 (92.4)	0.4 (0.2-0.8)	0.007		
KwaZulu-Natal	38/267 (14.2)	229/267 (85.8)	0.9 (0.5-1.5)	0.653		
Limpopo	2/9 (22.2)	7/9 (77.8)	1.5 (0.3-7.7)	0.606		
Mpumalanga	0/3 (0)	3/3 (100.0)				
North West	1/40 (2.5)	39/40 (97.5)	0.1 (0.0-1.0)	0.054		



<b>Characteristic</b>	<b>Mortality n/N (%)</b>	<b>Alive n/N (%)</b>	<b>Unadjusted OR (95% CI)</b>	<b>p-value</b>	<b>Adjusted OR (95% CI)</b>
Northern Cape	2/13 (15.4)	11/13 (84.6)	1.0 (0.2-4.6)	0.973	
Western Cape	160/1278 (12.5)	1118/1278 (87.5)	0.8 (0.5-1.2)	0.212	
Severe*	132/619 (21.3)	487/619 (78.7)	2.9 (2.2-3.8)	<0.001	
Ever ICU	105/377 (27.9)	272/377 (72.1)	4.0 (3.0-5.3)	<0.001	
Ever High Care	38/313 (12.1)	275/313 (87.9)	1.0 (0.7-1.4)	0.951	
Ever ventilated	74/190 (39.0)	116/190 (61.0)	6.0 (4.3-8.3)	<0.001	
Ever on oxygen	102/665 (15.3)	563/665 (84.7)	1.5 (1.1-2.0)	0.003	

\* Severe disease was defined as any individual who was treated in high care or intensive care unit (ICU), ventilated or diagnosed with acute respiratory distress syndrome (ARDS).

## Acknowledgements

Private hospital groups submitting data to DATCOV19:

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

Western Cape Province: all public sector hospitals submitting data to DATCOV19

Public hospitals using DATCOV19 surveillance online platform:

- Dora Nginza Hospital (EC)
- Frere Hospital (EC)
- Livingstone Hospital (EC)
- Madwaleni Hospital (EC)
- Uitenhage Hospital (EC)
- Pelonomi Hospital (FS)
- National District Hospital (FS)
- Tambo Memorial Hospital (GP)
- Steve Biko Academic Hospital (GP)
- Charlotte Maxeke Johannesburg Academic Hospital (GP)
- Greys Hospital (KZN)
- Ladysmith Hospital (KZN)
- Manguzi Hospital (KZN)
- Addington Hospital (KZN)
- Polokwane Hospital (LP)
- Robert Mangaliso Sobukwe Hospital (NC)
- Tshepong Hospital (NW)
- Job Shimankana Thabane Hospital (NW)
- Tygerberg Hospital (WC)
- Helderberg Hospital (WC)