

HIGHLIGHTS

- As of 02 January 2021, 5424 (3.8%) of the 141508 COVID-19 hospital admissions recorded on the DATCOV surveillance database, were health care workers (HCWs), reported from 625 facilities in all nine provinces of South Africa. Among 1641/5424 (30.3%) HCWs with available data on type of work, 1023/1641 (62.3%) were nurses, 319/1641 (19.3%) porters or administrators, 145/1641 (8.8%) allied HCWs, 98/1641 (6.0%) doctors, 39/1641 (2.4%) paramedics, and 19/1641 (1.3%) laboratory scientists.
- There was an increase of 728 new HCW admissions since week 51.
- There were 2008 (37.0%) and 3416 (63.0%) admissions reported in the public and private sector, respectively.
- The majority of HCW admissions (4681/5424; 86.3%) were recorded in four provinces, with the highest number 1800/5424 (33.2%) reported in Gauteng, followed by 1351/5424 (24.9%) in KwaZulu-Natal, 890/5424 (16.4%) in Eastern Cape and 640/5424 (11.8%) in Western Cape provinces.
- The median age of COVID-19 admissions among HCWs was 48 years (interquartile range [IQR] 38–57). There were 905 (16.7%) admissions in HCW 60 years and older. Among admitted HCWs with COVID-19, 3893 (71.8%) were female.
- The prevalence of comorbid diseases among HCW was 2338/4310 (54.3%). Among the 4310 HCWs who had reported a comorbid condition, the most commonly reported comorbid conditions were hypertension (1531/4310; 35.5%) and diabetes (999/4310; 23.1%). There were 6.1% (261/4310) HCWs that were HIV positive, 5.6% (242/4310) were obese, 0.9% (38/4310) had active tuberculosis (TB) and 0.6 (36/4310) reported a previous history of TB.
- A total of 846 (15.6%) HCW admissions were ever treated in ICU, of these 463 (54.7%) were treated with oxygen, 255 (30.1%) were treated on ventilation and 577(68.2%) received both treatments. Of the 5424 HCW admissions, 4546(83.8%) were discharged alive, 71 (1.3%) transferred out to either higher level care or step-down facilities, 492 (8.4%) HCWs had died and 315 (5.8%) were currently in hospital. The majority of deaths among HCW admitted with COVID-19, were reported in the Eastern Cape (150, 30.5%), followed by 121 (24.6%) from KwaZulu-Natal and 97 (19.7%) from Gauteng provinces. Of the HCWs who died, 351 (71.3%) had comorbid disease reported and 192 (39.0%) had more than one reported comorbidity.
- Among HCWs with known in-hospital outcome the case fatality ratio was (492/5038, 9.7%).

Methods

DATCOV, 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 DATCOV surveillance in all nine provinces of South Africa (Table 1). 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. All hospitalized patients who were noted to be doctors, nurses, allied health care workers, laboratory staff, porters and administrative staff were captured as health care workers (HCWs). An individual was defined as having severe disease if treated in high care or intensive care unit (ICU) or ventilated or diagnosed with acute respiratory distress syndrome (ARDS).

Data on all COVID-19 admissions are received from all private and public hospitals nationally, in all nine provinces. As new hospitals join the surveillance system, they retrospectively captured all admissions recorded. As of 02 January 2021, a total of 625 facilities, 375 from public sector and 250 from private sector, submitted data on hospitalized patients with COVID-19 (Table 1).

Table 1: Number of hospitals reporting data on COVID-19 admissions by province and health-sector, South Africa, 5 March – 02 January 2021

Provinces	Public	Private
Eastern Cape	84	18
Free State	35	20
Gauteng	38	90
KwaZulu-Natal	62	45
Limpopo	41	7
Mpumalanga	28	9
North West	13	12
Northern Cape	16	8
Western Cape	58	41
South Africa	375	250

Results

From 5 March to 02 January 2021, there was a total of 5424/141508 (3.8%) COVID-19 admissions among HCWs. Of these admissions, 2008 (37.0%) and 3416 (63.0%) were reported in the public and private sector, respectively (Figure 1). The majority of HCW admissions (4681/5424; 86.3%) were recorded in four provinces, with the highest number 1800/5424 (33.2%) reported in Gauteng, followed by 1351/5424 (24.9%) in KwaZulu-Natal, 890/5424 (16.4%) in Eastern Cape and 640/5424 (11.8%) in Western Cape provinces (Figure 1).

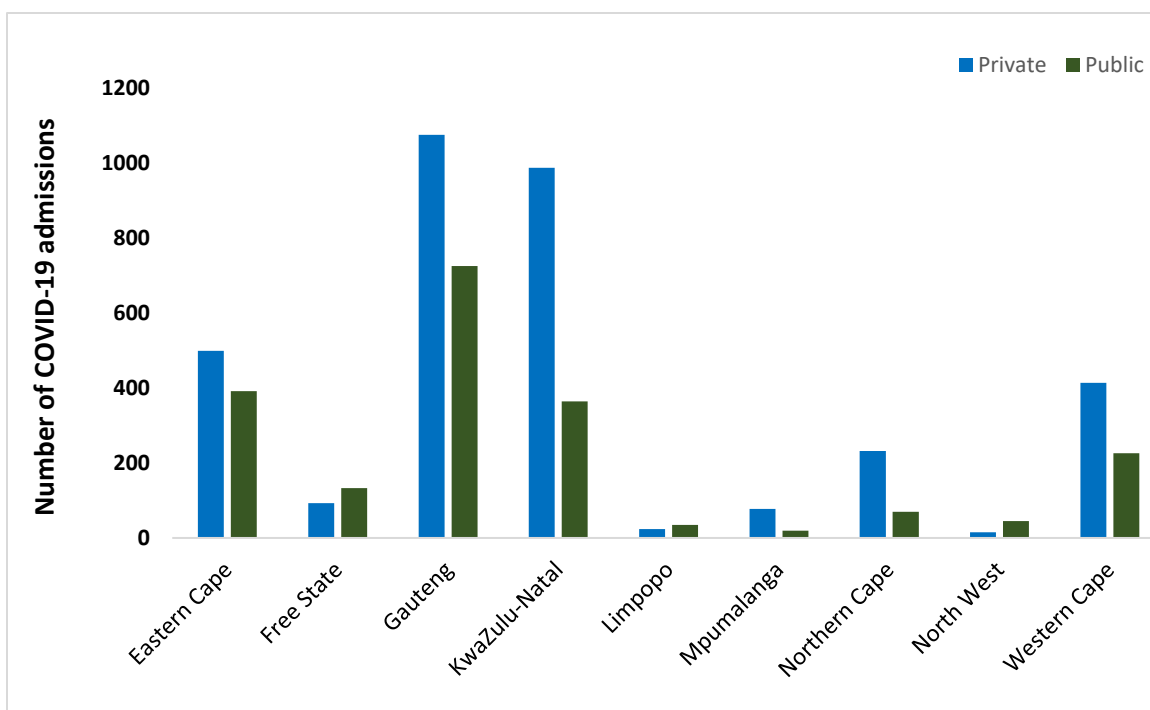


Figure 1: Number of reported COVID-19 admissions among HCWs by province and health-sector, South Africa, 5 March – 02 January 2021 (n=5424)

The overall number of admissions has been decreasing since week 29, however, there was a steady increase in hospital admissions from week 45 to week 48. After the slight decline in number of admissions in week 49, week 50 to 53 showed a dramatic increase in the number of new admissions. By province, the Kwa-Zulu-Natal, followed by Gauteng indicated the highest number of hospital admissions from week 50 to week 53 as shown in Figure 3.

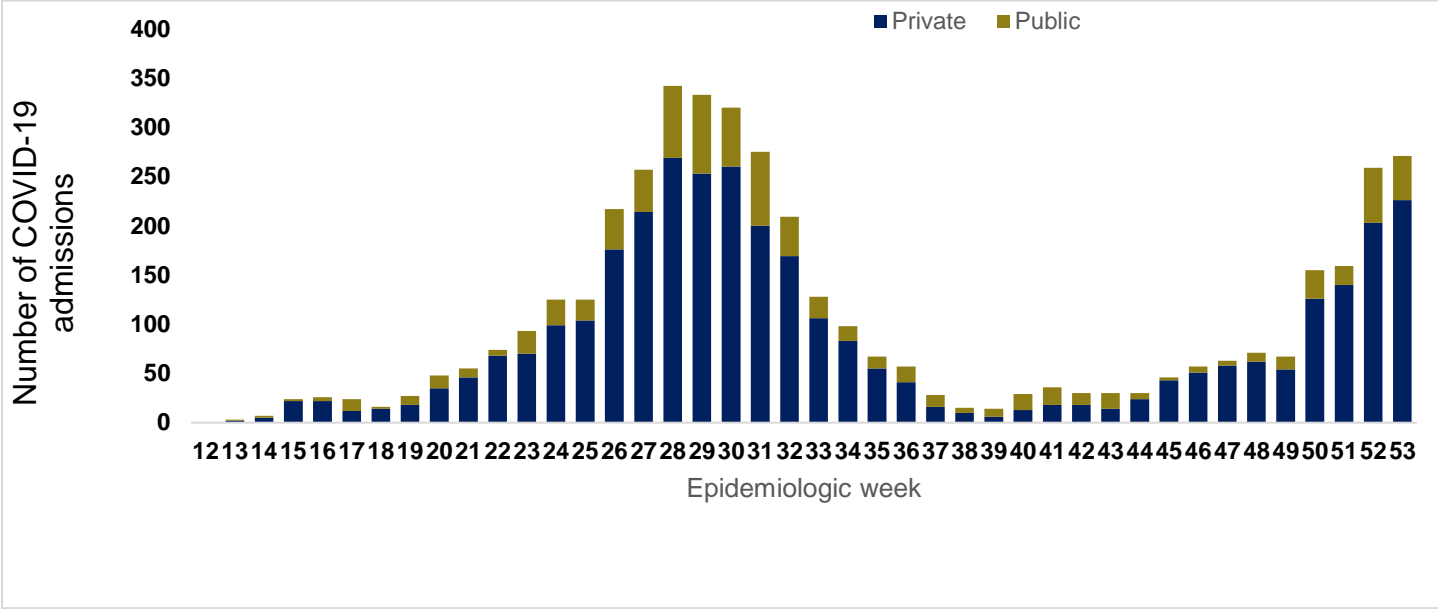


Figure 2: Number of reported COVID-19 admissions among HCWs by epidemiologic week of diagnosis and health-sector, South Africa, 5 March– 02 January 2021 (n=5424)

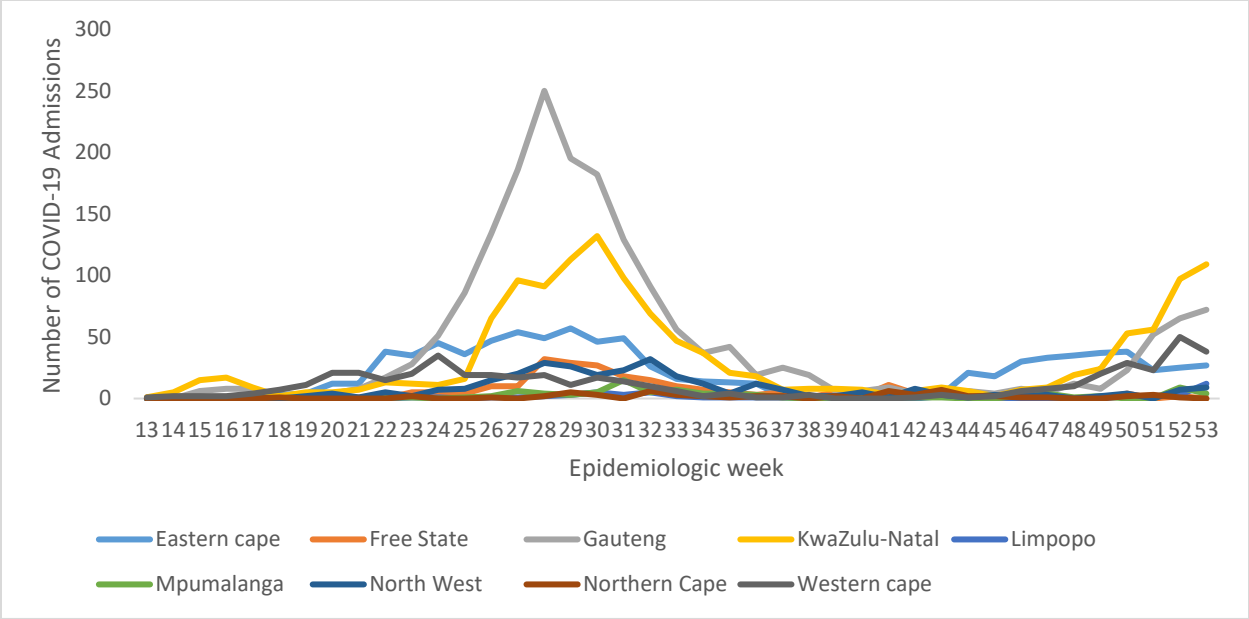


Figure 3: Number of reported COVID-19 admissions among HCWs by epidemiologic week of diagnosis and provinces, South Africa, 5 March– 02 January 2021(n=5424)

Demographic and clinical characteristics of HCWs admitted with COVID-19, South Africa, 5 March–02 January 2021

The median age of COVID-19 admissions among HCWs was 48 years (interquartile range [IQR] 38–57). There were 905 (16.7%) admissions in HCW 60 years and older (Figure 4). Among admitted HCWs with COVID-19, 3893 (71.8%) were female. The sex ratio varied by age group with females more common than males in all age groups (Figure 4). Among the 3411 female admissions, 90 (2.3%) were pregnant.

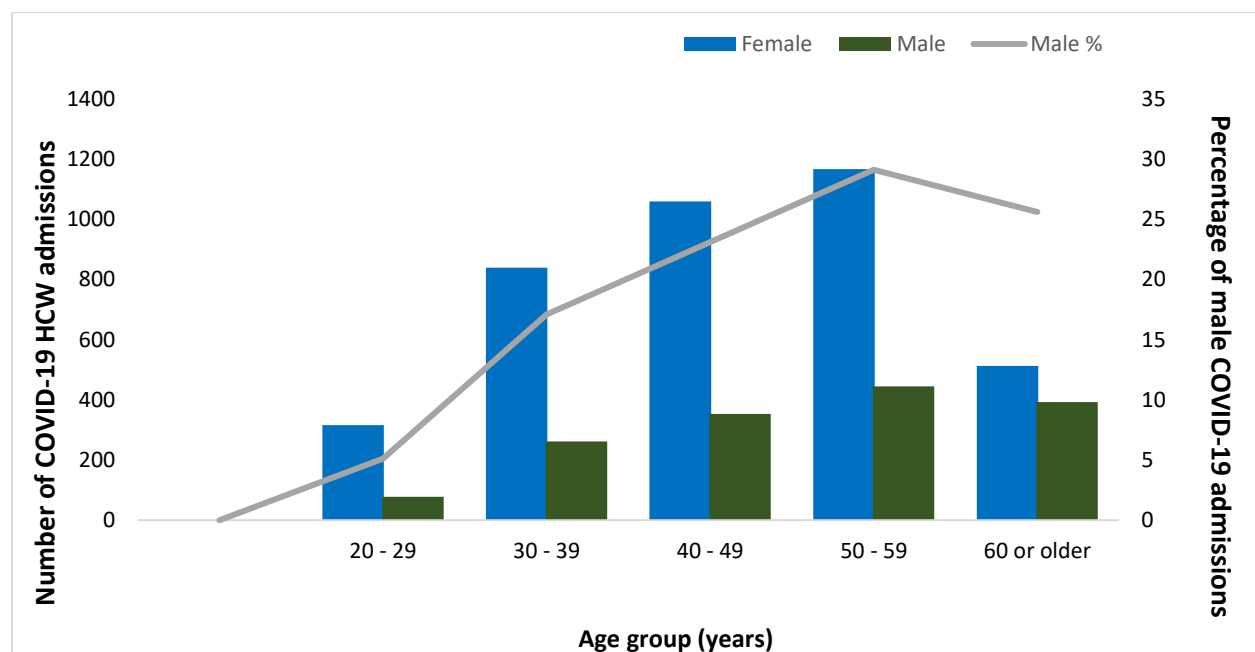


Figure 4: Number of reported HCW admitted with COVID-19 by age, gender and percentage of males, South Africa, 5 March– 02 January 2021 (n=5424)

The prevalence of HCWs with comorbid diseases was 2338/4310 (54.3%). Among the 4310 HCWs who had reported a comorbid condition, the most commonly reported comorbid conditions were hypertension (1531/4310; 35.5%) and diabetes (999/4310; 23.1%). There were 261/4310; 6.1%) HCWs who were HIV positive, (242/4310, 5.6%) were obese, (38/4310; 0.9%) with active tuberculosis (TB) and (36/4310; 0.8%) with a previous history of TB. (Table 2).

Table 2: The number and prevalence of comorbid diseases in HCW admitted with COVID-19, South Africa, 5 March– 02 January 2021 (n=4310)

Comorbid disease*	Frequency (n)	Percentage (%)
Hypertension	1531	35.5
Diabetes mellitus	999	23.1
Chronic cardiac disease	85	1.9
Chronic pulmonary disease/Asthma	291	6.8
Chronic renal disease	27	0.6
Malignancy	25	0.6
HIV	261	6.1
Active tuberculosis	38	0.9
Previous history of tuberculosis	36	0.8
Obesity	242	5.6

* 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

Severity

A total of 846 (15.6%) HCW admissions were ever treated in ICU, of these 463 (54.7%) were treated with oxygen, 255 (30.1%) were treated on ventilation and 577(68.2%) received both treatment. The mean age of patients who received oxygen or ventilation as an intervention (51.5 years) was significantly different from those who did not receive oxygen or ventilation intervention (45.7 years) ($p < 0.0001$). Of the HCW admissions treated with oxygen or ventilation, 513 (27.6%) had more than one comorbid disease ($p < 0.001$).

Outcomes

Of the 5424 HCW admissions, 4546 (83.8%) were discharged alive, 71 (1.3%) transferred out to either higher level care or step-down facilities, 492 (8.4%) HCWs had died and 315 (5.8%) were currently in hospital. The case fatality ratio (CFR) of among HCWs with known in-hospital outcome was lower than the CFR among non-HCW admissions reported to DATCOV (492/5038, 9.7% vs 26055/127284; 20.5%, $p < 0.0001$). (Figure 5)

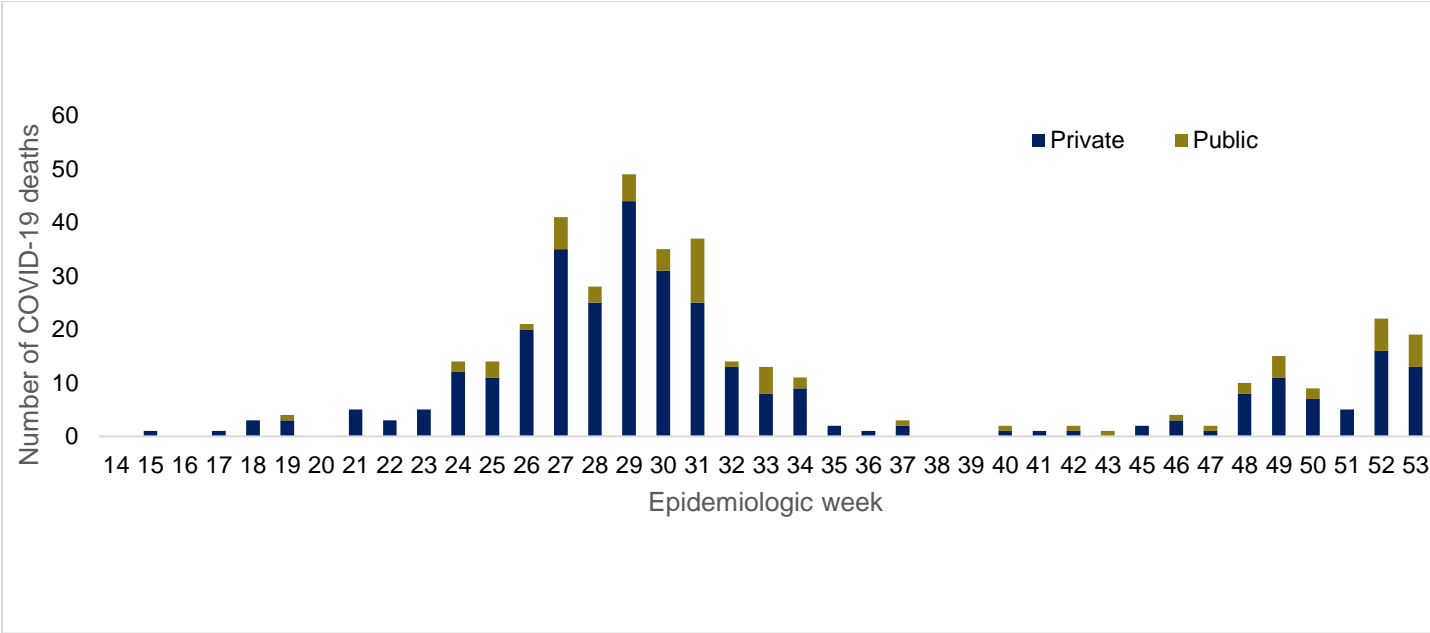


Figure 5. Number of reported COVID-19 deaths among admitted HCW by epidemiologic week in private and public sector, South Africa, 5 March– 02 January 2021.

Please note that the mortality data presented was based on available information from sentinel hospitals as of 02 January 2021, thus not all deaths that occurred during the reporting period nationally are included. Deaths that were subsequently confirmed not be of a HCW were removed from the data set.

The majority of deaths among HCW admitted with COVID-19, 150 (30.5%), were reported in the Eastern Cape, followed by 121 (24.6%) from KwaZulu-Natal and 97 (19.7%) from Gauteng provinces. Two hundred and ten (42.7%) of the deaths were recorded among HCWs aged 60 years

and older. The median age of those who died was 58 (IQR 50 – 66) years compared to 47 (IQR 37 – 55) years for those who were still alive. Two hundred and eight-six, (58.13%) of the deceased were admitted in ICU, 147 (29.88%) were ventilated, and 282 (57.3 %) were given supplemental oxygen. The median length of stay for the HCWs who died was 9 days [IQR 4 – 17] compared to 6 days [3 – 10] for those discharged alive. Of the HCWs who died, 351 (71.3%) had comorbid disease reported and 192 (39.0%) had more than one reported comorbidity. Hypertension 270 (76.9%), diabetes 201 (57.3%) and obesity 44 (12.5%) were the common reported comorbid diseases among the deceased.

Conclusions

The overall number of admissions among HCWs increased substantially from week 50 to week 53. The CFR among HCWs was lower than in the non-HCW. A higher proportion of deaths was observed among healthcare workers with comorbid medical conditions than among those without comorbid conditions.

Acknowledgements

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