

COVID-19 Hospital Surveillance Weekly Update on Hospitalized HCWs

[Update: Week 27, 2021](#)



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This report summarises data of COVID-19 cases admitted to hospital surveillance sites in all provinces. The report is based on data collected from 5 March 2020 to 10 July 2021 on the DATCOV platform.

HIGHLIGHTS

- As of 10 July 2021 (week 27), 8505 (3.2%) of the 266516 COVID-19 hospital admissions recorded on the DATCOV surveillance database, were health care workers (HCWs), reported from 660 facilities in all nine provinces of South Africa. Among 2590/8505 (30.5%) HCWs with available data on type of work, 1488/2590 (57.5 %) were nurses, 588/2,590 (22.7%) porters or administrators, 226/2590 (8.7%) allied HCWs, 196/2590 (7.6%) doctors, 62/2590 (2.4%) paramedics, and 30/2590 (1.2%) were laboratory scientists.
- There were 2679 (31.5%) and 5826 (68.5%) admissions reported in the public and private sectors, respectively. The majority of HCW admissions (7121/8505; 83.7%) were recorded in four provinces, with the highest number 2961/8505 (34.8%) reported in Gauteng, followed by 1979/8505 (23.3%) in KwaZulu-Natal, 1080/8505 (12.7 %) in Eastern Cape and 1101/8505 (13.0%) in Western Cape Provinces. The median age of COVID-19 admissions among HCWs was 49 years (interquartile range [IQR] 39–58). There were 1743 (20.5%) admissions in HCWs 60 years and older (Figure 4). Among the admitted HCWs with COVID-19, 5757 (67.7%) were females and 2746 (32.3%) were males.
- The numbers of HCW admissions were highest in Gauteng, KwaZulu-Natal and Eastern Cape during the first wave and highest in Gauteng, KwaZulu-Natal and Western Cape during the second wave. The peak in the number of HCW admissions was lower in the second wave compared to the first wave for all provinces except Western Cape. In the third wave, the number of COVID-19 HCW admissions increased in Gauteng and it seems to remain relatively constant from week 25 of 2021 onwards.
- The prevalence of comorbid diseases among HCW was 3162/7130 (52.8%). Among the 7130 HCWs who had reported a comorbid condition, the most commonly reported comorbid conditions were hypertension (2575/7130; 36.1%) and diabetes (1368/7130; 23.4%). There were 5.3% (373/7130) of HCWs that were HIV positive, 5.1% (367/7130) were obese, 0.8% (55/7130) had active tuberculosis (TB) and 0.9% (66/7130) reported a previous history of TB.
- A total of 1474 (17.3%) HCWs admitted were treated in ICU, of these 918 (62.3%) required supplemental oxygen, 524 (35.55%) required invasive mechanical ventilation and 314 (59.9%) required both treatments. Of the 8505 HCWs admitted, 7211 (84.8%) were discharged alive, 101 (1.2%) transferred out to either high-level care or step-down facilities, 1024 (12.0%) had died and 169 (1.99%) were currently in hospital. The majority of deaths among HCWs admitted with COVID-19 were reported in Gauteng (312, 30.5%) and KwaZulu-Natal 249 (24.3%), followed by the Eastern Cape (188, 18.4%) provinces. Of the HCWs who died, 642(66.2%) had comorbid disease reported and 325 (33.5%) had more than one reported comorbidity. The case fatality ratio (CFR) of HCWs with known in-hospital outcomes reported to DATCOV was 12.4% (1024/8235).

Methods

DATCOV hospital surveillance for COVID-19 admissions was initiated on 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 or positive antigen test for SARS-CoV-2 who was admitted to a 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). HCWs included in this surveillance report were from 20 to 79 years old, the age group of almost all HCWs in South Africa. The age group was also applied in the non-HCWs to make the two groups comparable. 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 10 July 2021, a total of 660 facilities, 403 from the public sector and 257 from the 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 2020 –10 July 2021

Provinces	Public	Private
Eastern Cape	85	18
Free State	35	20
Gauteng	40	94
KwaZulu-Natal	70	46
Limpopo	41	7
Mpumalanga	31	9
North West	17	13
Northern Cape	25	8

Western Cape	59	42
South Africa	403	257

Results

From 5 March 2020 to 10 July 2021, there was a total of 8505/266516 (3.2%) COVID-19 admissions among HCWs. Of these admissions, 2679 (31.5%) and 5826 (68.5%) were reported in the public and private sectors, respectively (Figure 1). The majority of HCW admissions (7121/8505; 83.7%) were recorded in four provinces, with the highest number 2961/8505 (34.8%) reported in Gauteng, followed by 1979/8505 (23.3%) in KwaZulu-Natal, 1080/8505 (12.7 %) in Eastern Cape and 1101/8505 (13.0 %) in Western Cape provinces (Figure 1).

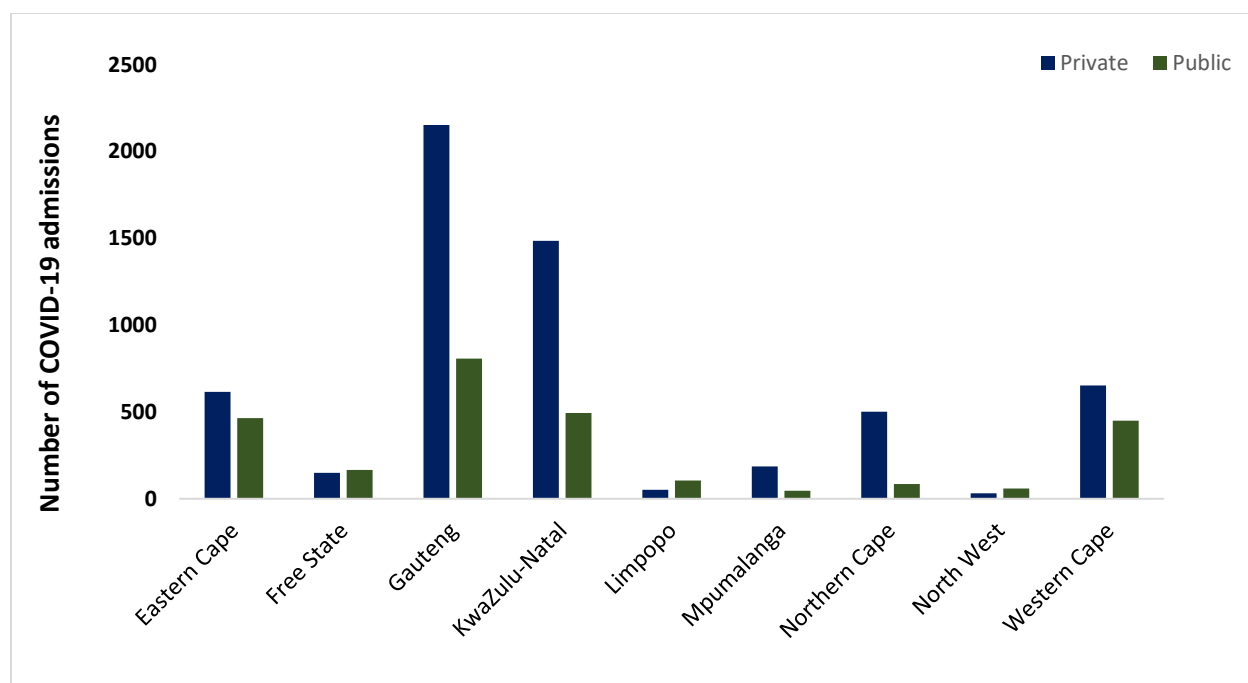


Figure 1: Number of reported COVID-19 admissions among HCWs by province and health sector, South Africa, 5 March 2020 –10 July 2021 (n=8505)

Figure 2 shows that HCW admissions peaked in week 28 of 2020 during the first wave of the pandemic and in week 1 of 2021 during the second wave, and then a gradual decrease was observed. The number

of HCW admissions has been increasing from week 20 of 2021 during the third wave of the pandemic in South Africa.

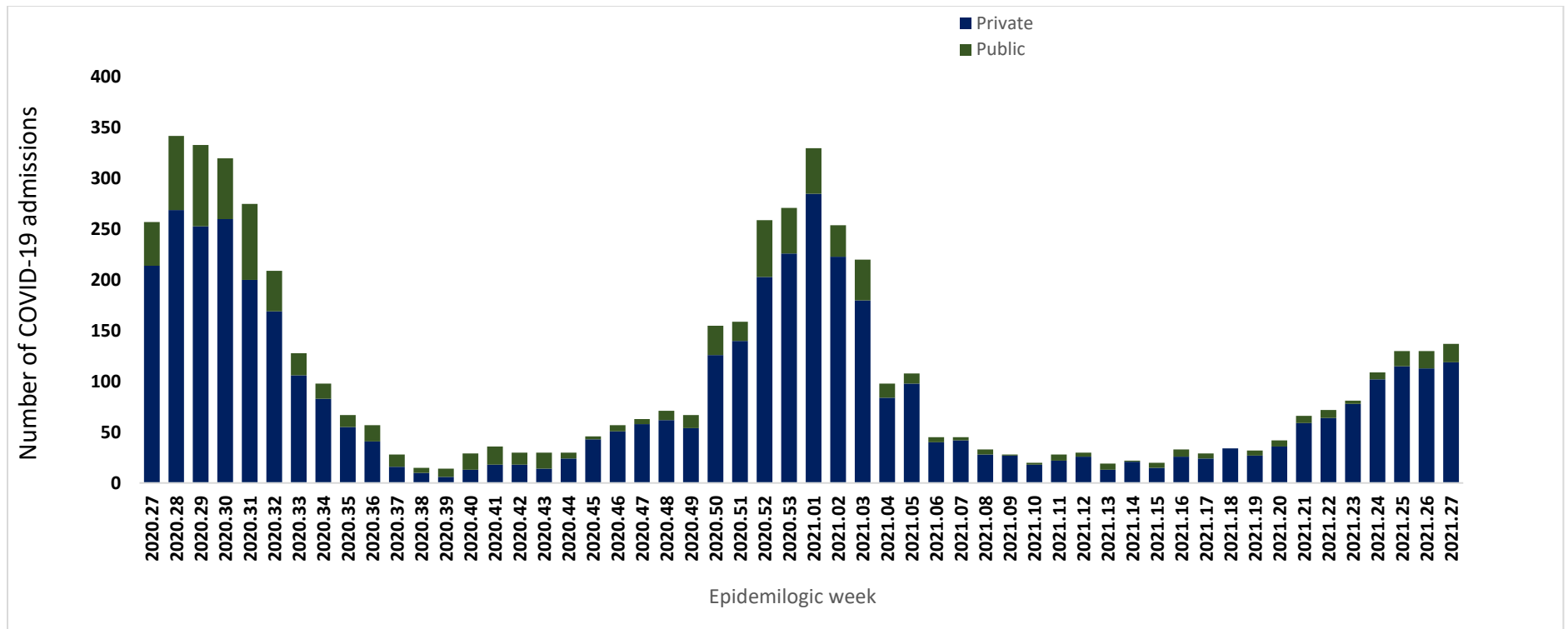


Figure 2: Number of reported COVID-19 admissions among HCWs by an epidemiologic week of diagnosis and health-sector, South Africa, 5 March 2020 –10 July 2021 (n=8505)

The numbers of HCW admissions were highest in Gauteng, KwaZulu-Natal and Eastern Cape during the first wave and highest in Gauteng, KwaZulu-Natal and Western Cape during the second wave. The peak in the number of HCW admissions was lower in the second wave compared to the first wave for all provinces except Western Cape (Figure 3). In the third wave, the number of COVID-19 HCW admissions increased in Gauteng and it seems to remain relatively constant from week 25 of 2021 onwards.

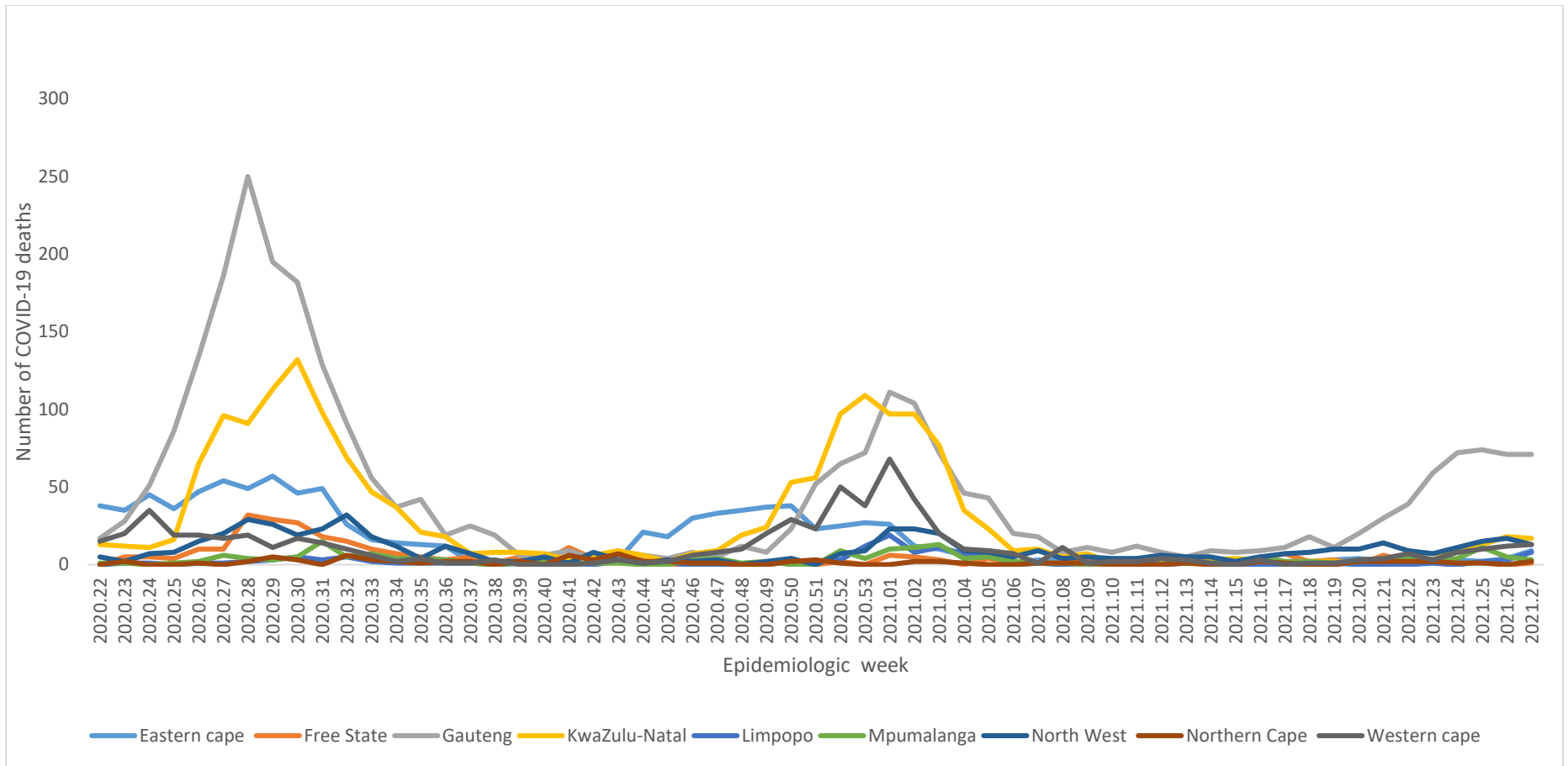


Figure 3: Number of reported COVID-19 admissions among HCWs by an epidemiologic week of diagnosis and provinces, South Africa, 5 March 2020 – 10 July 2021 (n=8505)

Demographic and clinical characteristics of HCWs admitted with COVID-19, South Africa, 5 March 2020 –10 July 2021

The median age of COVID-19 admissions among HCWs was 49 years (interquartile range [IQR] 39–58). There were 1743 (20.5%) admissions in HCW 60 years and older (Figure 4). Among the admitted HCWs with COVID-19, 5757 (67.7%) were females and 2746 (32.3%) were males. The sex ratio varied by age group with females more common than males in all age groups (Figure 4). Among the 5757 female admissions, 174 (3.02%) were pregnant.

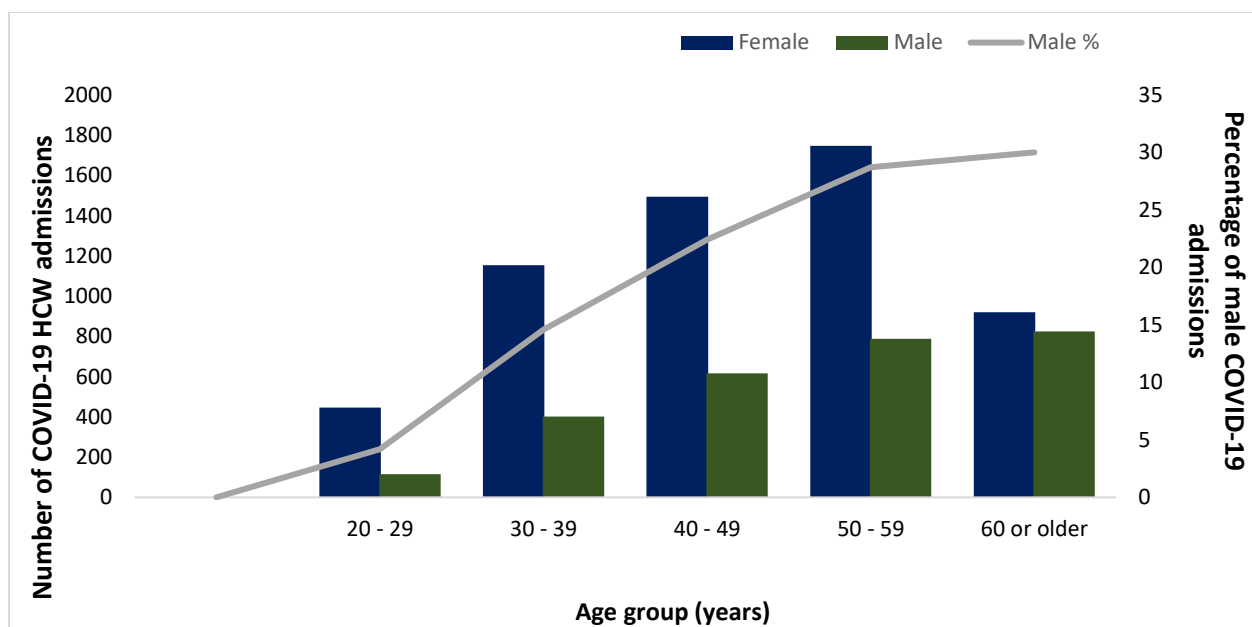


Figure 4: Number of reported HCW admitted with COVID-19 by age, gender and percentage of males, South Africa, 5 March 2020 –10 July 2021 (n=8505)

The prevalence of comorbid diseases among HCW was 3162/7130 (52.8%). Among the 7130 HCWs who had reported a comorbid condition, the most commonly reported comorbid conditions were

hypertension (2575/7130; 36.1%) and diabetes (1368/7130; 23.4%). There were 5.3% (373/7130) of HCWs that were HIV positive, 5.1% (367/7130) were obese, 0.8% (55/7130) had active tuberculosis (TB) and 0.9% (66/7130) reported 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 2020 –10 July 2021 (n=7130)

Comorbid disease*	Frequency (n)	Percentage (%)
Hypertension	2575	36.1
Diabetes mellitus	1670	23.4
Chronic cardiac disease	141	2.0
Chronic pulmonary disease/Asthma	482	6.8
Chronic renal disease	44	0.6
Malignancy	35	0.5
HIV	373	5.2
Active tuberculosis	55	0.8
Previous history of tuberculosis	66	0.9
Obesity	367	5.1

* 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

Severity

A total of 1474 (17.3%) HCW admissions were ever treated in ICU, of these 918 (62.3%) required supplemental oxygen, 524 (35.6%) required invasive mechanical ventilation and 314 (59.9%) required both treatments. The mean age of patients who received oxygen or ventilation as an intervention (52.4 years) was significantly older than those who did not receive oxygen or ventilation intervention (46.4 years) ($p < 0.0001$). Of the all HCW admissions treated with oxygen or ventilation, 824/3572 (23.6%) had more than one comorbid disease ($p < 0.001$).

Outcomes

Of the 8505 HCWs admitted, 7211 (84.8 %) were discharged alive, 101 (1.2 %) transferred out to either high-level care or step-down facilities, 1024 (12.0%) had died and 169 (1.99%) were currently in hospital. The case fatality ratio (CFR) of HCWs with known in-hospital outcomes reported to DATCOV was 12.4% (1024/8235) compared to a CFR of 23.7% (56809/239453) among non-HCW admissions ($p < 0.001$) (Figure 5).

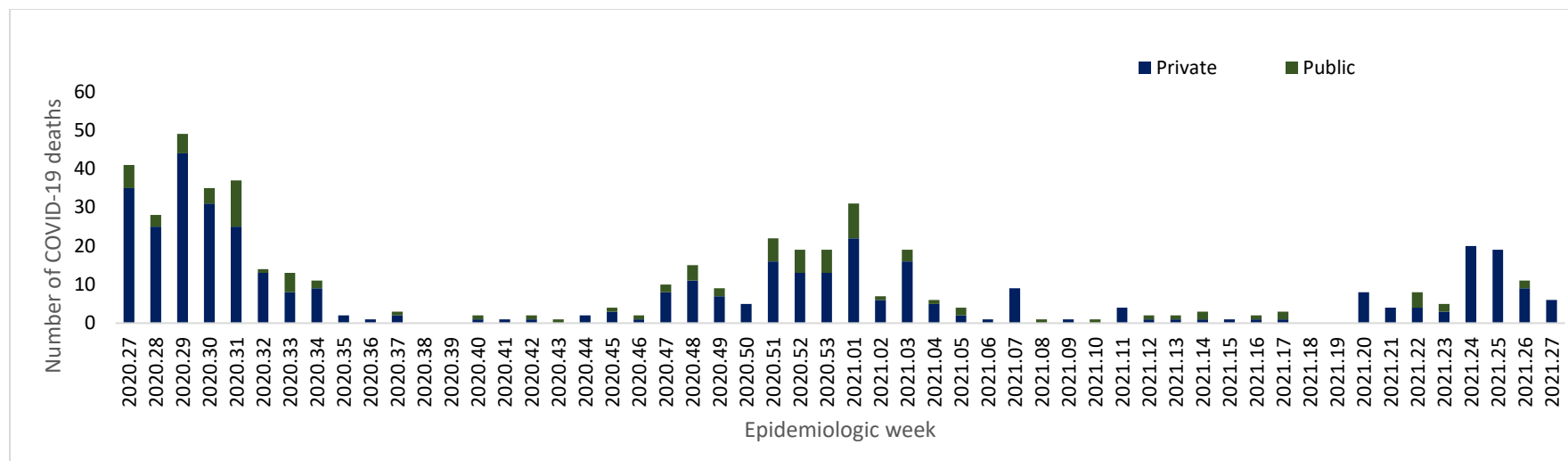


Figure 5. The number of reported COVID-19 deaths among admitted HCW by epidemiologic week in the private and public sector, South Africa, 5 March – 10 July 2021.

Please note that the mortality data presented was based on available information from sentinel hospitals as of 13 March 2021, thus not all deaths that occurred during the reporting period nationally are included. Deaths that were subsequently confirmed not to be of an HCW were removed from the data set.

The majority of deaths among HCWs admitted with COVID-19 were reported in Gauteng (312, 30.5%) and KwaZulu-Natal 249 (24.3%), followed by the Eastern Cape (188, 18.4%) provinces. Four hundred and fifty-eight (44.7%) 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 48 (IQR 38 – 57) years for those who were still alive. Six hundred and six (59.2%) of the deceased were admitted at ICU, 324 (31.6%) were ventilated, and 619 (60.5%) were given supplemental oxygen. The median length of stay for the HCWs who died was 10 days [IQR 5 – 19] compared to 6 days [3 – 10] for those discharged alive. Of the HCWs who died, 642(66.2%) had comorbid disease reported and 325 (33.5%) had more than one reported comorbidity. Hypertension 4495 (51.8%), diabetes 365 (38.8%) and obesity 64 (23.4%) were the common reported comorbid diseases among the deceased.

Comparison of COVID-19 admissions and deaths among HCWs in the first and second wave

There were 3998 (47.0%) and 4507 (53.0%) HCW admissions in the first and second waves, respectively. Comparison of the proportion of admissions of HCWs was higher in the second wave than in the first wave with a significant difference ($P < 0.0001$). A total of 661 (64.6%) HCWs died in the second wave compared to the 363 (35.5%) in the first wave. The CFR of HCWs was lower in the first wave (363/3943, 9.2%) than in the second wave (661/4292, 15.4%). CFR for non-HCWs was (14738/71090, 20.7%) in the first wave, and (42071/168363, 25.0%) in the second wave.

Comparison of COVID-19 admissions before and after the start of vaccination in South Africa

Since the start of vaccination in South Africa on 18 February 2021, there were 1201 (14.1%) HCW admissions recorded compared to 7304 (85.9%) before vaccination rollout.

Conclusions

The number of HCW admissions has increased in the third wave, particularly in Gauteng, however, it remains fairly constant in the past two weeks. While the numbers of admissions were lower in the second wave, the number of deaths and the CFR of HCWs was higher in the second wave than in the first wave. This is in keeping with the publication of DATCOV data, that revealed 31% higher mortality rate in the second wave compared to the first wave, even after adjusting for age, sex, race, province, sector and weekly hospital admissions; suggesting that the residual mortality may be associated with the new SARS-CoV-2 Beta lineage (501Y.V2) ([Jassat et al., 2021](#)). A higher proportion

of deaths was observed among healthcare workers with comorbid medical conditions than among those without comorbid conditions.

Acknowledgements

Our gratitude goes to the National Institute for Communicable Diseases for granting access to the DATCOV data.

Reference

Jassat W, Mudara C, Ozougwu L, Tempia S, Blumberg L, Davies MA, Pillay Y, Carter T, Morewane R, Wolmarans M, von Gottberg A. Difference in mortality among individuals admitted to hospital with COVID-19 during the first and second waves in South Africa: a cohort study. *The Lancet Global Health*. 2021 Jul 9.