

# COVID-19

## Sentinel Hospital Surveillance

### Weekly Update on Hospitalized HCWs

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[Update: Week 14, 2021](#)



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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 2020 to 10 April 2021 on the DATCOV platform.

# HIGHLIGHTS

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- As of 10 April 2021, 6877 (2.9%) of the 231552 COVID-19 hospital admissions recorded on the DATCOV surveillance database, were health care workers (HCWs), reported from 644 facilities in all nine provinces of South Africa. Among 2260/6877 (32.9%) HCWs with available data on type of work, 1337 /2260 (59.2%) were nurses, 504/2260 (22.3%) porters or administrators, 192/2260 (8.5%) allied HCWs, 152 /2260 (6.7%) doctors, 52/2260 (2.3%) paramedics, and 23/2260 (1.0%) were laboratory scientists.
  - There was an increase of 119 new HCW admissions since week 10 of 2021. There were 3754 (54.6%) and 3123 (45.4%) HCW admissions in the first and second wave, respectively. A total of 331 (42.8%) HCWs died in the second wave compared to the 443 (57.2%) in the first wave. The CFR of HCWs was lower in the first wave (9.0%) than in the second wave (14.6%).
  - There were 2345 (34.1%) and 4534 (65.9%) admissions reported in the public and private sector, respectively.
  - The majority of HCW admissions (5823/6877; 84.7%) were recorded in four provinces, with the highest number 2229/6879 (32.4%) reported in Gauteng, followed by 1788/6877 (26.0%) in KwaZulu-Natal, 984/6877 (14.3%) in Eastern Cape and 822/6877 (11.9%) in Western Cape provinces. The median age of COVID-19 admissions among HCWs was 49 years (interquartile range [IQR] 39–57). There were 1268 (18.4%) admissions in HCW 60 years and older. Among admitted HCWs with COVID-19, 4810 (69.9%) were female.
  - The prevalence of comorbid diseases among HCW was 3004/5675 (52.9%). Among the 5675 HCWs who had reported a comorbid condition, the most commonly reported comorbid conditions were hypertension (2037/5675; 35.9%) and diabetes (1327/5675; 23.4%). There were 5.6% (316/5675) of HCWs that were HIV positive, 5.9% (334/5675) were obese, 0.8% (46/5696) had active tuberculosis (TB) and 0.8% (48/5675) reported a previous history of TB.
  - A total of 1131 (16.5%) HCW admissions were ever treated in ICU, of these 703 (62.2%) were treated with oxygen, 397 (35.1%) were treated on ventilation and 258 (36.7%) received both treatments. Of the 6877 HCW admissions, 5946 (86.5%) were discharged alive, 99 (1.4%) transferred out to either higher level care or step-down facilities, 774 (11.3%) HCWs had died and 58 (0.8%) were currently in hospital. The majority of deaths among HCWs admitted with COVID-19, were reported in Kwa-Zulu Natal (219, 28.3%), followed by the Gauteng 198 (25.6%) and 173 (22.4%) from Eastern Cape provinces. Of the HCWs who died, 237 (32.0%) reported no comorbidities, 31.4% (243/774) had one comorbid disease reported and 33.6% (260/774) had more than one reported comorbidity.
  - Among HCWs with known in-hospital outcome the case fatality ratio was 11.5% (774/6720).
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# Methods

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DATCOV 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 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 10 April 2021, a total of 644 facilities, 393 from public sector and 251 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 2020 – 10 April 2021**

Provinces	Public	Private
Eastern Cape	85	18
Free State	35	20
Gauteng	39	91
KwaZulu-Natal	70	45
Limpopo	41	7
Mpumalanga	31	9
North West	16	12
Northern Cape	17	8
Western Cape	59	41
South Africa	393	251

# Results

From 5 March 2020 to 10 April 2021, there was a total of 6879/231552 (2.9%) COVID-19 admissions among HCWs. Of these admissions, 2345 (34.1%) and 4532 (65.9%) were reported in the public and private sector, respectively (Figure 1). The majority of HCW admissions (5823/6877; 84.7%) were recorded in four provinces, with the highest number 2229/6879 (32.4%) reported in Gauteng, followed by 1788/6877 (26.0%) in KwaZulu-Natal, 984/6877 (14.3%) in Eastern Cape and 822/6877 (11.9%) in Western Cape provinces (Figure 1).

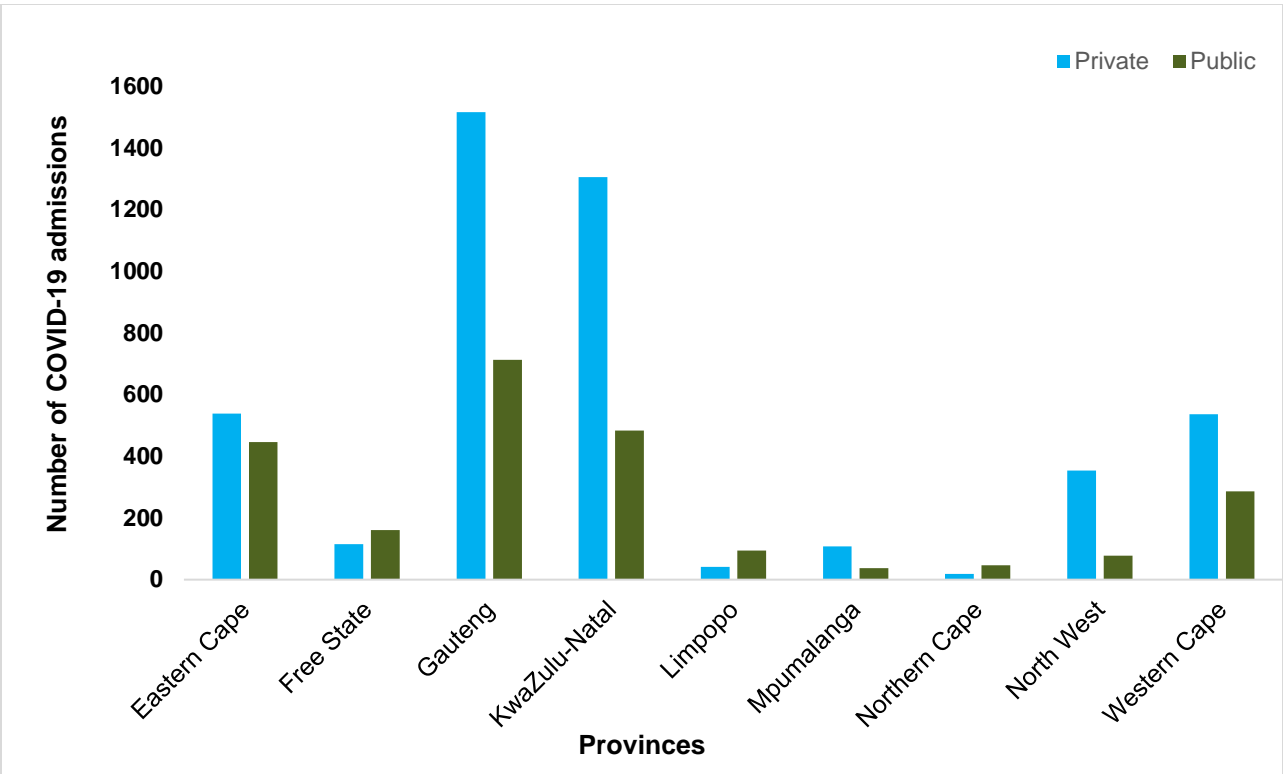
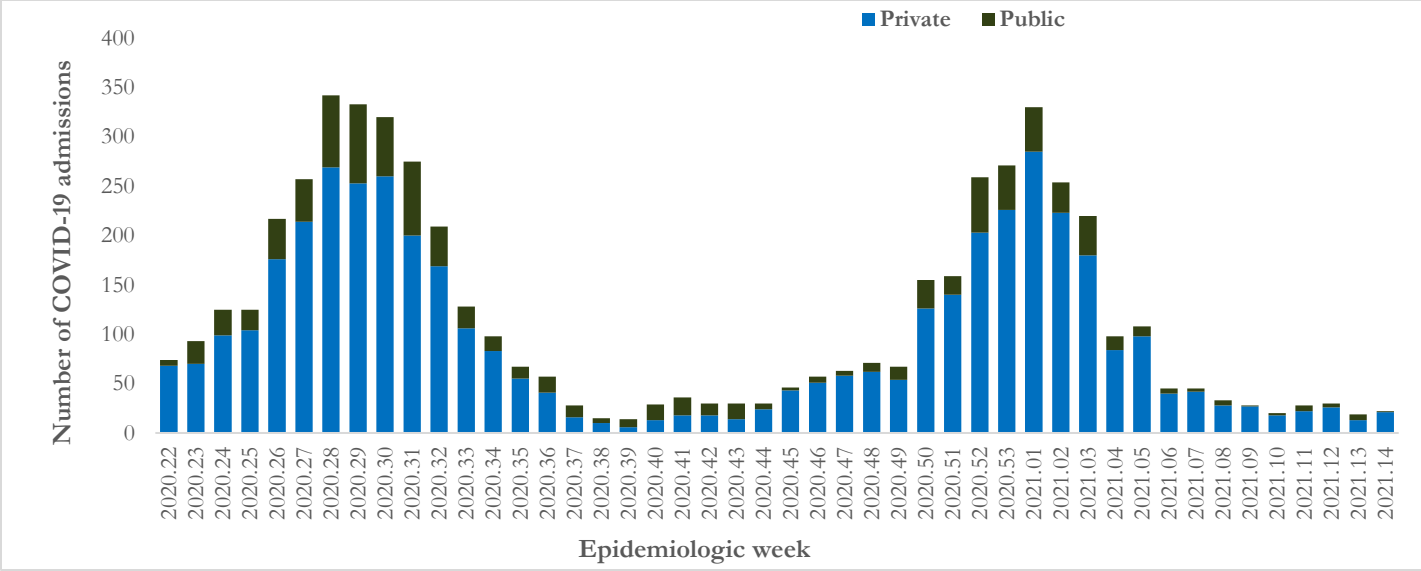


Figure 1: Number of reported COVID-19 admissions among HCWs by province and health-sector, South Africa, 5 March 2020 – 10 April 2021 (n=6877)

HCW admissions peaked in week 28 during the first wave of the pandemic and in week 1 of 2021 during the second wave (Figure 2).



**Figure 2: Number of reported COVID-19 admissions among HCWs by epidemiologic week of diagnosis and health-sector, South Africa, 5 March 2020 – 10 April 2021 (n=6877)**

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).

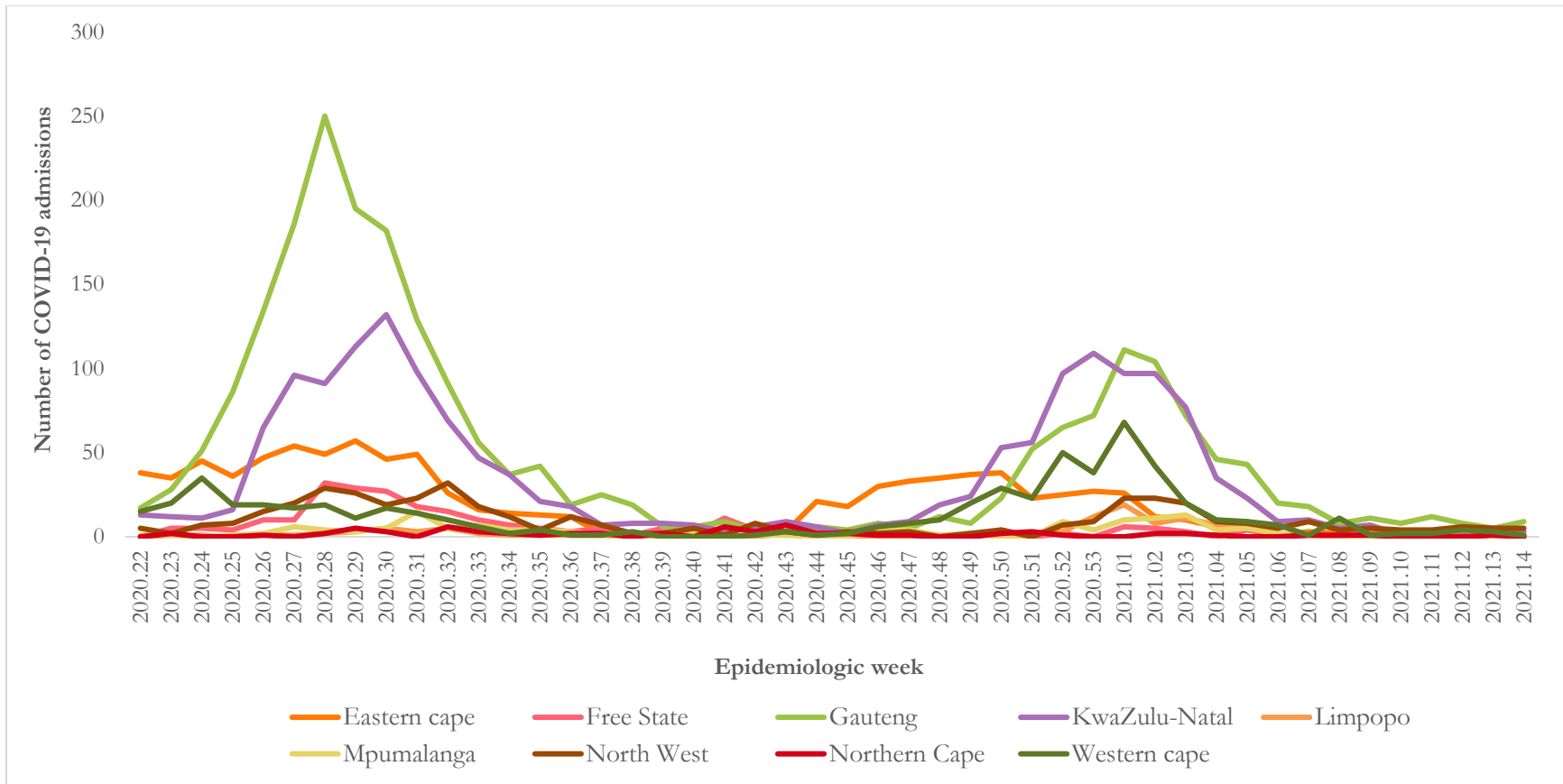
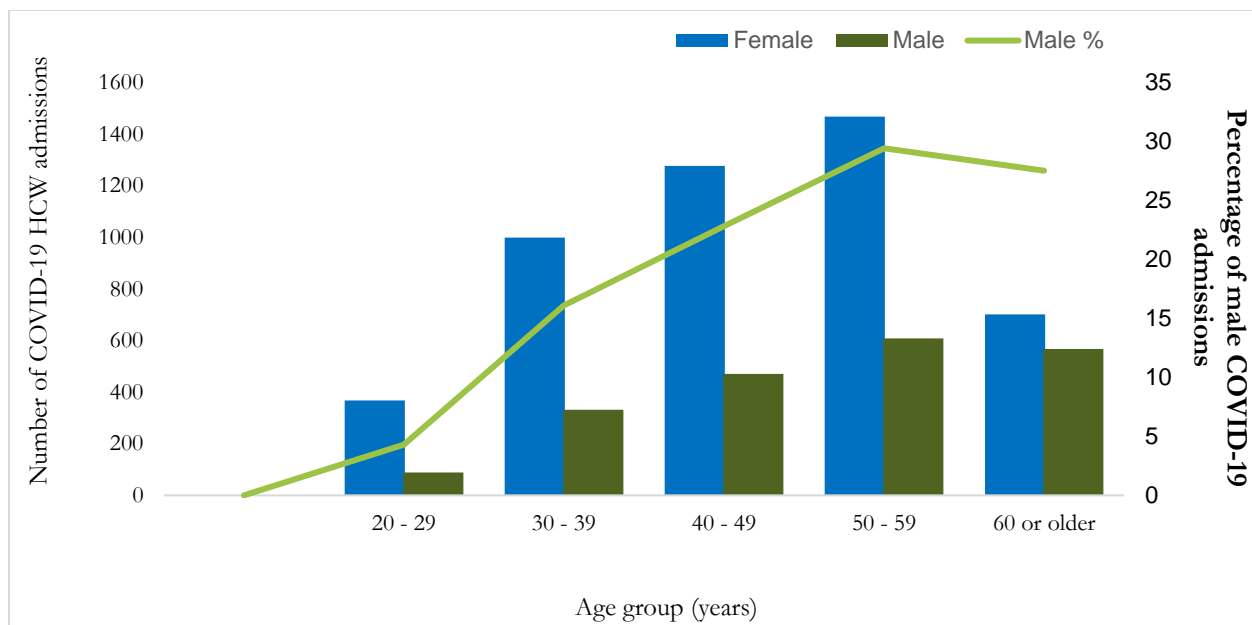


Figure 3: Number of reported COVID-19 admissions among HCWs by epidemiologic week of diagnosis and provinces, South Africa, 5 March 2020 –10 April 2021 (n=6877)

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

The median age of COVID-19 admissions among HCWs was 49 years (interquartile range [IQR] 39–57). There were 1268 (18.4%) admissions in HCW 60 years and older (Figure 4). Among admitted HCWs with COVID-19, 4810 (69.9%) were female. The sex ratio varied by age group with females more common than males in all age groups (Figure 4). Among the 4810 female admissions, 129 (2.7%) 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 April 2021 (n=6877)

The prevalence of comorbid diseases among HCW was 3004/5675 (52.9%). Among the 5675 HCWs who had reported a comorbid condition, the most commonly reported comorbid conditions were hypertension (2037/5675; 35.9%) and diabetes (1327/5675; 23.4%). There were 5.6% (316/5675) of HCWs that were HIV positive, 5.9% (334/5675) were obese, 0.8% (46/5696) had active tuberculosis (TB) and 0.8% (48/5675) 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 April 2021 (n=5675)**

Comorbid disease*	Frequency (n)	Percentage (%)
Hypertension	2037	35.9
Diabetes mellitus	1327	23.4
Chronic cardiac disease	115	2.0
Chronic pulmonary disease/Asthma	382	6.7
Chronic renal disease	32	0.6
Malignancy	31	0.5
HIV	316	5.6
Active tuberculosis	48	0.8
Previous history of tuberculosis	54	0.9
Obesity	226	3.9

\* 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

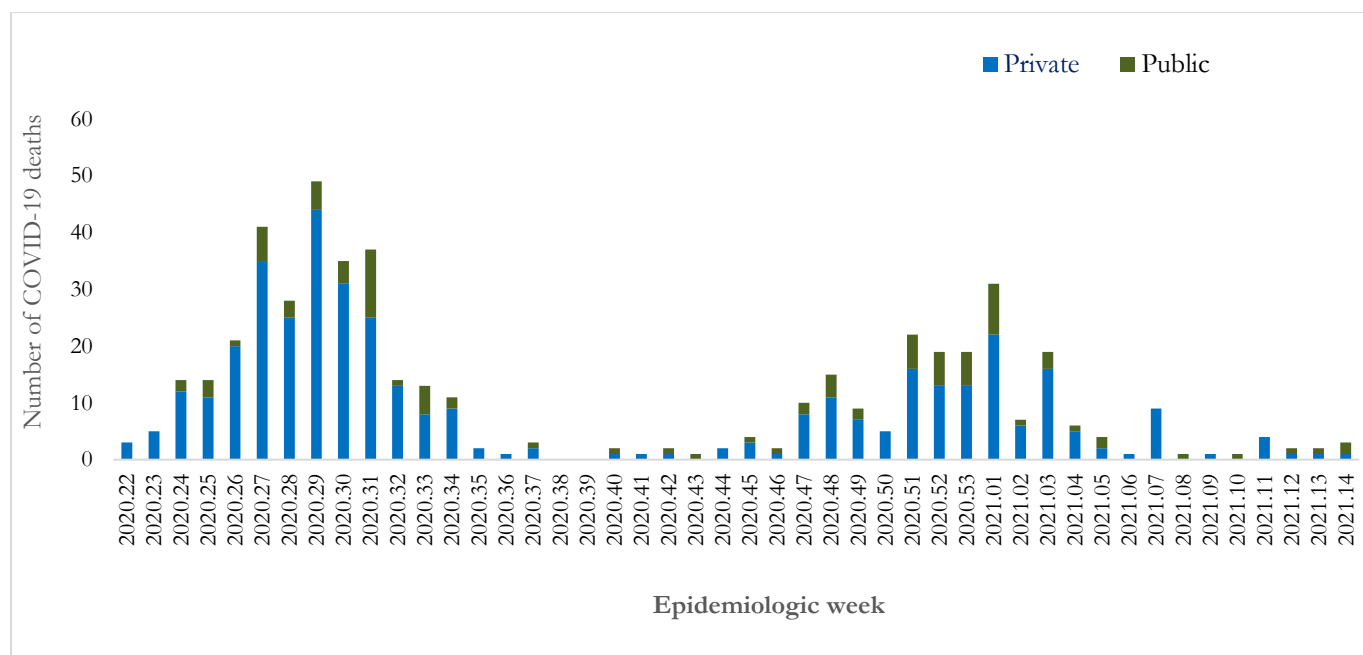
## Severity

A total of 1131 (16.5%) HCW admissions were ever treated in ICU, of these 703 (62.2%) were treated with oxygen, 397 (35.1%) were treated on ventilation and 258 (36.7%) received both treatments. The mean age of patients who received oxygen or ventilation as an intervention (51.7 years) was significantly older than those who did not receive oxygen or ventilation intervention (46.1 years) ( $p < 0.0001$ ). Of the all HCW admissions treated with oxygen or ventilation, 646/2764 (23.4%) had more than one comorbid disease ( $p < 0.001$ ).



## Outcomes

Of the 6877 HCW admissions, 5946 (86.5%) were discharged alive, (1.4%) transferred out to either higher level care or step-down facilities, 774 (11.3%) HCWs had died and 58 (0.8%) were currently in hospital. The case fatality ratio (CFR) of HCWs with known in-hospital outcome reported to DATCOV was 11.5% (774/6720) compared to a CFR of 23.1% (44600/193280) among non-HCW admissions ( $p < 0.001$ ) (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 – 10 April 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 be of a HCW were removed from the data set.

The majority of deaths among HCWs admitted with COVID-19, were reported in Kwa-Zulu Natal (219, 28.3%), followed by the Gauteng 198 (25.6%) and 173 (22.4%) from Eastern Cape provinces. Three hundred and thirty-eight (43.7%) of the deaths were recorded among HCWs aged 60 years and older. The median age of those who died was 58 (IQR 50 – 65) years compared to 48 (IQR 38 – 56) years for those who were still alive. Four hundred and fifty-eight (59.2%) of the deceased were admitted in ICU, 241 (31.1%) were ventilated, and 478 (61.2%) were given supplemental oxygen. The

median length of stay for the HCWs who died was 10 days [IQR 4 – 18] compared to 6 days [3 – 10] for those discharged alive. Of the HCWs who died, 503 (67.9%) had comorbid disease reported and 260 (33.6%) had more than one reported comorbidity. Hypertension 396 (54.3%), diabetes 285 (39.8%) and obesity 60 (25.9%) 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 3754 (54.6%) and 3123 (45.4%) HCW admissions in the first and second wave, respectively. Comparison of the proportion of admissions in the first and second wave indicated a significant difference in admissions ( $P < 0.0001$ ). A total of 443 (57.2%) HCWs died in the second wave compared to the 331 (42.8%) in the first wave. The proportion of deaths in the second wave was significantly higher than that of the first wave ( $p < 0.0001$ ). The CFR of HCWs was lower in the first wave (9.0%) than in the second wave (14.6%). CFR for Non-HCWs was 20.3% in the first wave, and 24.7% in the second wave.

## **Conclusions**

The number of HCW admissions has remained low following the end of the second wave. The Sisonke Johnson & Johnson COVID-19 vaccination rollout commenced on the 17<sup>th</sup> February 2021, with the first phase of vaccination prioritizing HCWs. By 10 April 2021, 288 406 HCWs had been vaccinated. The epidemic curve shows a decline in COVID-19 cases from week 6 of 2021 when the first phase of the vaccine was implemented.

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 publication of DATCOV data, that revealed a 20% higher mortality rate in the second wave compared to 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 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

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## References

1. Jassat W, Mudara C , Ozougwu L , Tempia S, Blumberg L , MaryAnn Davies MA, Pillay Y, Carter T , Morewane R , Wolmarans M , von Gottberg A. Bhiman JN, Walaza S , DATCOV Author Group, Cohen C. 2021. Increased mortality among individuals hospitalized with COVID-19 during the second wave in South Africa. *MedRxiv*. <https://doi.org/10.1101/2021.03.09.21253184>