

COVID-19

Sentinel Hospital Surveillance

Weekly Update on Hospitalized HCWs

[Update: Week 6, 2021](#)



Compiled by:

**Epidemiology and Surveillance Division
National Institute for Occupational Health
25 Hospital Street, Constitution Hill, Johannesburg**

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 13 February 2021 on the DATCOV platform.

HIGHLIGHTS

- As of 13 February 2021, 6666 (3.3%) of the 202700 COVID-19 hospital admissions recorded on the DATCOV surveillance database, were health care workers (HCWs), reported from 640 facilities in all nine provinces of South Africa. Among 2056/6666 (30.8%) HCWs with available data on type of work, 1277/2056 (62.1%) were nurses, 387/2056 (18.8%) porters or administrators, 177/2056 (8.6%) allied HCWs, 140/2056 (6.8%) doctors, 53/2056 (2.6%) paramedics, and 22/2056 (1.1%) laboratory scientists.
 - There was an increase of 200 new HCW admissions since week 4 of 2021
 - There were 2312 (34.7%) and 4354 (65.3%) admissions reported in the public and private sector, respectively.
 - The majority of HCW admissions (5689/6666; 85.3%) were recorded in four provinces, with the highest number 2200/6666 (33.0%) reported in Gauteng, followed by 1725/6666 (25.9%) in KwaZulu-Natal, 969/6666 (14.5%) in Eastern Cape and 795/6666 (12.0%) in Western Cape Provinces.
 - The median age of COVID-19 admissions among HCWs was 49 years (interquartile range [IQR] 39–57). There were 1200 (18.0%) admissions in HCW 60 years and older. Among admitted HCWs with COVID-19, 4677 (70.2%) were female.
 - The prevalence of comorbid diseases among HCW was 2574/5506 (46.7%). Among the 5506 HCWs who had reported a comorbid condition, the most commonly reported comorbid conditions were hypertension (1921/5506; 34.9%) and diabetes (1259/5506; 22.9%). There were 5.4% (298/5506) of HCWs that were HIV positive, 5.8% (307/5506) were obese, 0.7% (40/5506) had active tuberculosis (TB) and 0.8% (46/5506) reported a previous history of TB.
 - A total of 1072 (16.1%) HCW admissions were ever treated in ICU, of these 753 (70.2%) were treated with oxygen, 369 (34.4%) were treated on ventilation and 328 (30.5%) received both treatments. Of the 6666 HCW admissions, 5706 (85.6%) were discharged alive, 95 (1.4%) transferred out to either higher level care or step-down facilities, 703 (10.6%) HCWs had died and 162 (2.4%) were currently in hospital. The majority of deaths among HCW admitted with COVID-19, were reported in Kwa-Zulu Natal (192, 27.3%), followed by the Gauteng (176, 25.0%), and 171 (24.3%) from Eastern Cape provinces. Of the HCWs who died, 467 (66.4%) had a comorbid disease reported and 248 (35.3%) had more than one reported comorbidity.
 - Among HCWs with known in-hospital outcome the case fatality ratio was 11.0% (703/6409).
-

Methods

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 13 February 2021, a total of 640 facilities, 380 from public sector and 260 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 – 13 February 2021

Provinces	Public	Private
Eastern Cape	85	18
Free State	36	20
Gauteng	38	91
KwaZulu-Natal	66	45
Limpopo	41	7
Mpumalanga	31	9
North West	16	12
Northern Cape	8	17
Western Cape	59	41
South Africa	380	260

Results

From 5 March 2020 to 13 February 2021, there was a total of 6666/202700 (3.3%) COVID-19 admissions among HCWs. Of these admissions, 2312 (34.7%) and 4354 (65.3%) were reported in the public and private sector, respectively (Figure 1). The majority of HCW admissions (5689/6666; 85.3%) were recorded in four provinces, with the highest number 2200/6666 (33.0%) reported in Gauteng, followed by 1725/6666 (25.9%) in KwaZulu-Natal, 969/6666 (14.5%) in Eastern Cape and 795/6666 (12.0%) in Western Cape provinces (Figure 1).

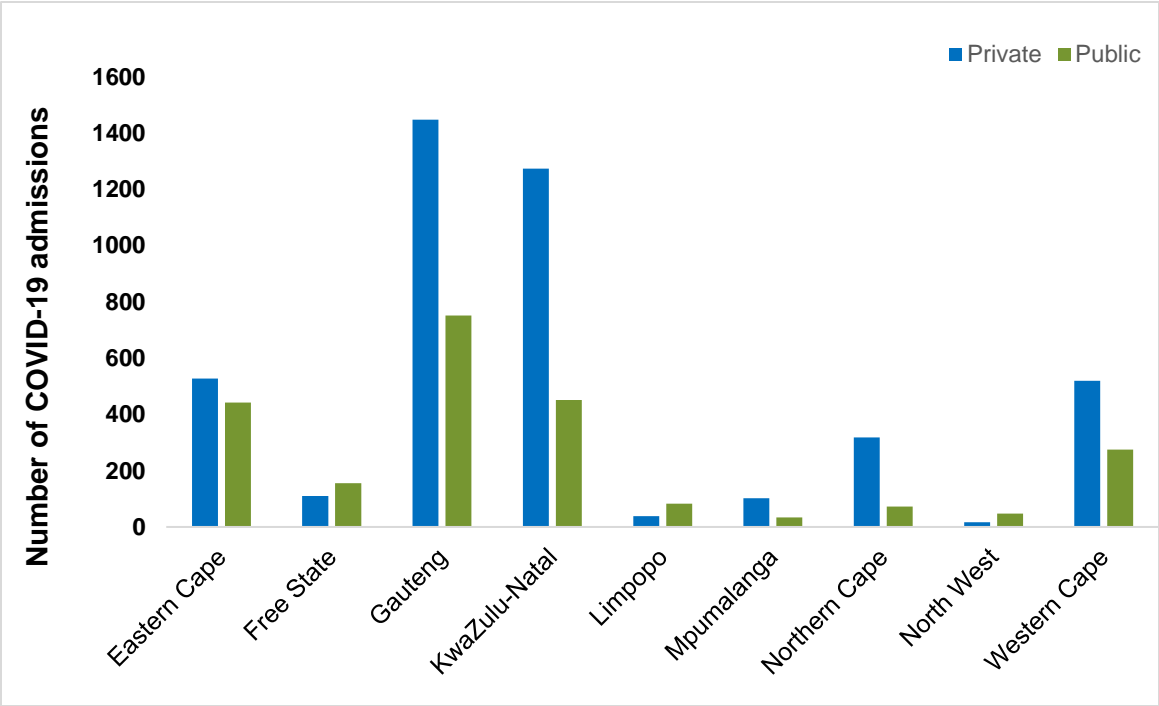


Figure 1: Number of reported COVID-19 admissions among HCWs by province and health-sector, South Africa, 5 March 2020 – 13 February 2021 (n=6666)

The overall number of admissions has been decreasing since week 28. Weekly numbers of admissions started increasing around week 45 (2020), when the second wave of the epidemic started nationally. The number of admissions peaked in week 1 of 2021, and steadily started declining from week 2 to week 6 of 2021. (Figure 2).

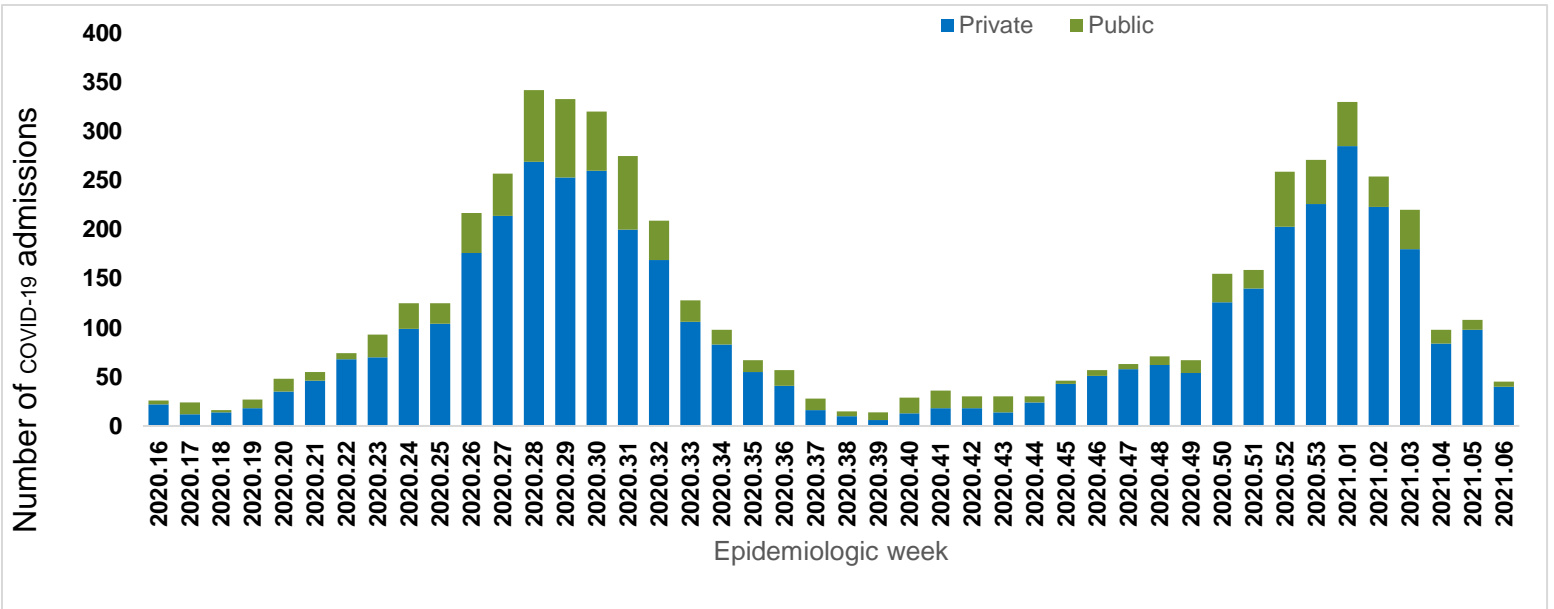


Figure 2: Number of reported COVID-19 admissions among HCWs by epidemiologic week of diagnosis and health-sector, South Africa, 5 March 2020 – 13 February 2021 (n=6666)

In the first wave of COVID-19 infections, the number of HCW admissions peaked during weeks 28 -30 in Gauteng and KwaZulu-Natal (Figure 3). Weekly admissions then declined and started increasing again at the beginning of the second wave, first in the Eastern Cape in week 46, followed by the Western Cape in week 48 then Kwa-Zulu Natal and Gauteng in week 49. Between week 53 in 2020 and week 6 of 2021 HCW admissions declined across provinces.

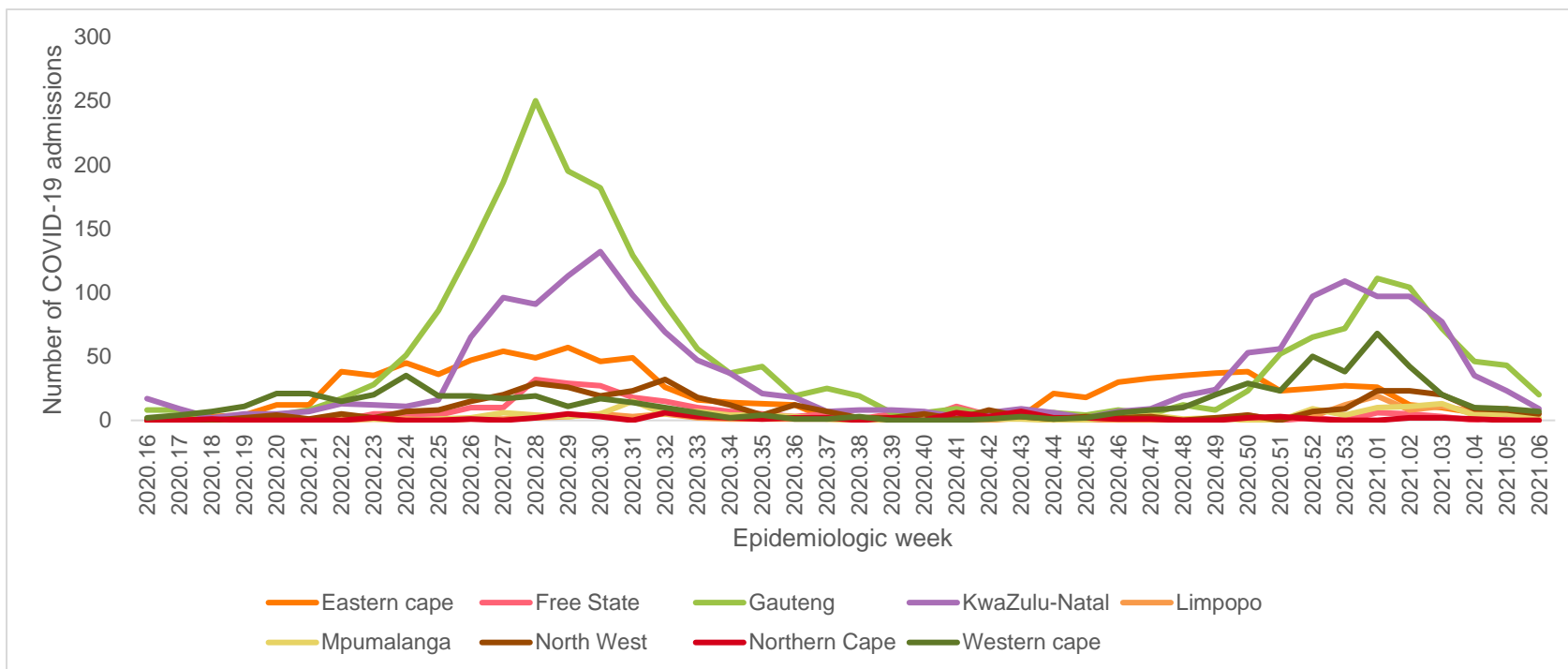


Figure 3: Number of reported COVID-19 admissions among HCWs by epidemiologic week of diagnosis and provinces, South Africa, 5 March 2020 –13 February 2021 (n=6666)

Demographic and clinical characteristics of HCWs admitted with COVID-19, South Africa, 5 March 2020 –13 February 2021

The median age of COVID-19 admissions among HCWs was 49 years (interquartile range [IQR] 39–57). There were 1200 (18.0%) admissions in HCW 60 years and older (Figure 4). Among admitted HCWs with COVID-19, 4677 (70.2%) were female. The sex ratio varied by age group with females more common than males in all age groups (Figure 4). Among the 4531 female admissions, 115 (2.5%) were pregnant.

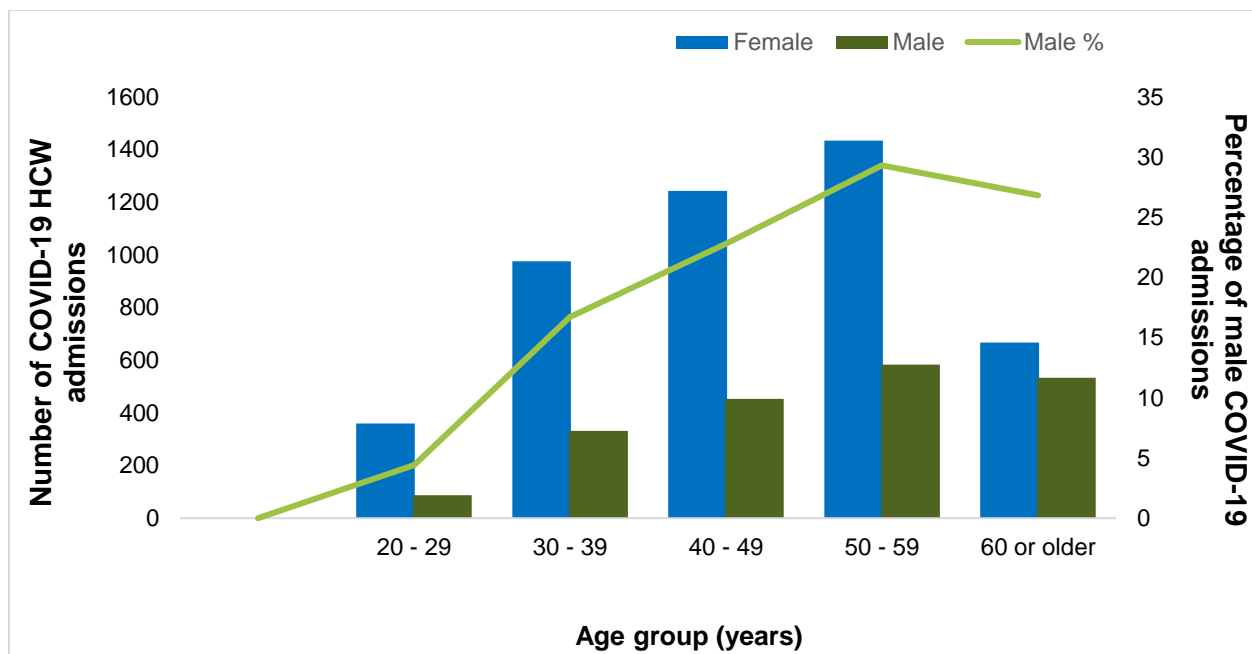


Figure 4: Number of reported HCW admitted with COVID-19 by age, gender and percentage of males, South Africa, 5 March 2020 – 13 February 2021 (n=6666)

The prevalence of comorbid diseases among HCW was 2574/5506 (46.7%). Among the 5506 HCWs who had reported a comorbid condition, the most commonly reported comorbid conditions were hypertension (1921/5506; 34.9%) and diabetes (1259/5506; 22.9%). There were 5.4 % (298/5506) of HCWs that were HIV positive, 5.8% (307/5506) were obese, 0.7% (40/5506) had active tuberculosis (TB) and 0.8(46/5506) 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 – 13 February 2021 (n=5506)

Comorbid disease*	Frequency (n)	Percentage (%)
Hypertension	1921	34.9
Diabetes mellitus	1259	22.9
Chronic cardiac disease	107	1.9
Chronic pulmonary disease/Asthma	361	6.5
Chronic renal disease	29	0.5
Malignancy	27	0.5
HIV	298	5.4
Active tuberculosis	40	0.7
Previous history of tuberculosis	47	0.8
Obesity	307	5.8

* 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 1072 (16.1%) HCW admissions were ever treated in ICU, of these 753 (70.2%) were treated with oxygen, 369 (34.4%) were treated on ventilation and 328 (30.5%) received both treatments. The mean age of patients who received oxygen or ventilation as an intervention was significantly older (51.6 years) than those who did not receive oxygen or ventilation intervention (46.0 years) ($p < 0.0001$). Of the HCW admissions treated with oxygen or ventilation, 681 (25.9%) had more than one comorbid disease ($p < 0.001$).

Outcomes

Of the 6666 HCW admissions, 5706 (85.6%) were discharged alive, 95 (1.4%) transferred out to either higher level care or step-down facilities, 703 (10.6%) HCWs had died and 162 (2.4%) were currently in hospital. The number of COVID-19 deaths among HCWs in the second wave was lower, whereas more deaths were seen in non-HCWs. The case fatality ratio (CFR) of HCWs with known in-hospital outcome reported to DATCOV was (703/6409, 11.0%) compared to a CFR of (44131/189250; 23.3%) among non-HCW admissions ($p < 0.001$) (Figure 5). The CFR of HCWs was lower in the first wave (8.8%) than in the second wave (14%). CFR for Non-HCWs was 20.7% in the first wave, and 25.2% in the second wave.

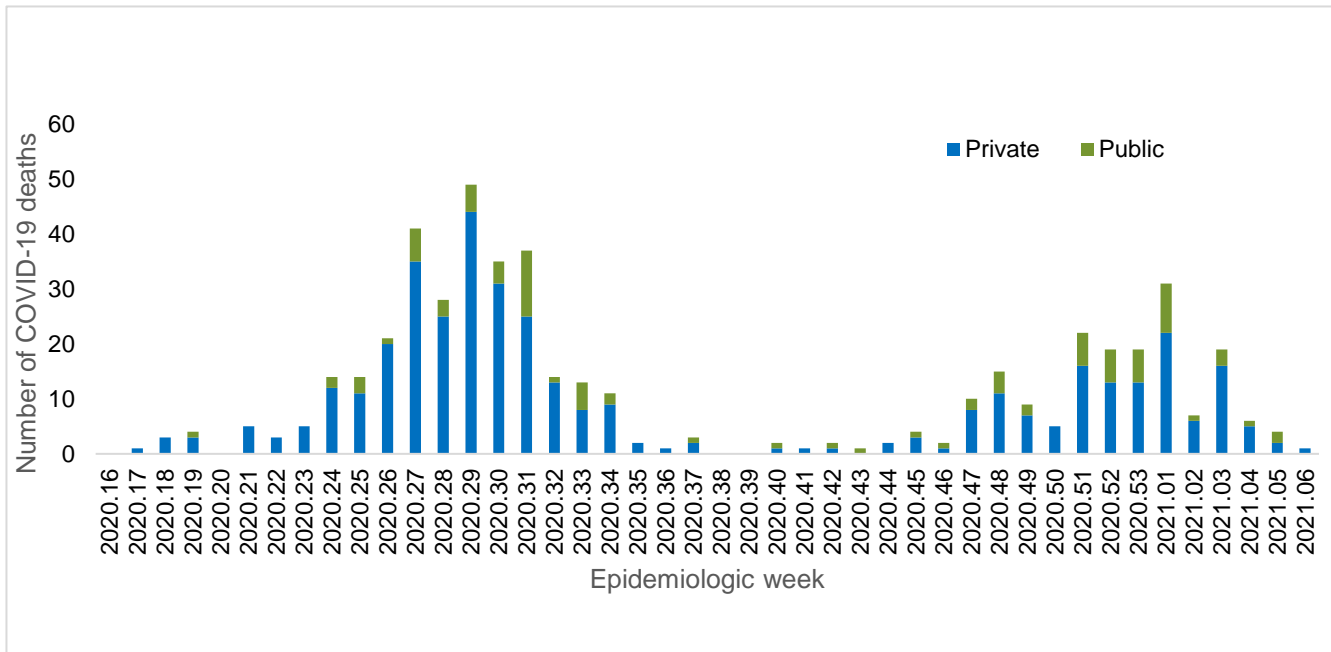


Figure 5. Number of reported COVID-19 deaths among admitted HCW by epidemiologic week in private and public sector, South Africa, 5 March– 13 February 2021.

Please note that the mortality data presented was based on available information from sentinel hospitals as of 13 February 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 (192, 25.0%), followed by the Gauteng 176 (25.0%) and 171 (24.3%) from Eastern Cape provinces. Three hundred and five (43.4%) 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 47 (IQR 38 – 56) years for those who were still alive. Four hundred and fourteen (58.9%) of the deceased were admitted in ICU, 216 (30.7%) were ventilated, and 509 (72.4%) 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, 467 (66.4%) had comorbid disease reported and 248 (36.6%) had more than one reported comorbidity. Hypertension 362 (54.9%), diabetes 257 (39.6%) and obesity 53 (22.2%) were the common reported comorbid diseases among the deceased.

Conclusions

The number of HCW admission started increasing in the second wave of COVID-19 infections around week 45 of 2020 and declined from week 2 of 2021. By province, Gauteng, KwaZulu-Natal, Eastern Cape and the Western Cape had a higher number of HCW admissions from week 46-49. The CFR of HCWs was higher in the second wave than in the first wave. 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 data.