COVID-19 Hospital Surveillance- Update on Hospitalized Health Care Workers

Update: Week 50 of 2022

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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 17 December 2022 on the DATCOV platform.

HIGHLIGHTS

- As of 17 December 2022 (week 50 of 2022), 11006 (2.0%) of the 546446 COVID-19 hospital admissions recorded on the DATCOV surveillance database, were health care workers (HCWs), reported from 670 facilities in all nine provinces of South Africa. Among 3234/11006 (29.4%) HCWs with available data on type of work, 1758/3234 (54.4%) were nurses, 855/3234 (26.4%) porters or administrators, 282/3234 (8.7%) allied HCWs, 231/3234 (7.1%) doctors, 69/3234 (2.1%) paramedics, and 39/3234 (1.2%) were laboratory scientists.
- The median age of COVID-19 admissions among HCWs was 49 years (interquartile range [IQR] 39 – 58). There were 2301 (20.9%) admissions in HCWs 60 years and older. Among the admitted HCWs with COVID-19, 7405 (67.3%) were females.
- The prevalence of comorbid diseases among HCWs was 4805/11006 (43.7%). Among the 4805 HCWs with one or more comorbid condition, the most commonly reported underlying conditions were hypertension 69.1% (3322/4805) and diabetes 42.3% (2079/4805). There were 9.2% (442/4805) HCWs that were HIV positive, 1.4% (69/4805) with active tuberculosis (TB) and 1.6% (76/4805) with a previous history of TB.
- A total of 1777/11006 (16.1%) HCWs admitted were treated in ICU, of these treated in ICU, 1060 (59.7%) required supplemental oxygen, 594 (33.4%) required invasive mechanical ventilation and 343 (32.4%) required both treatments. Of the 11006 HCWs admitted, 9588 (87.1%) were discharged alive, 97 (0.9%) transferred out to either high-level care or step-down facilities, 1320 (12.0%) died and 1 (0.01%) were currently in hospital.
- The majority of deaths among HCWs admitted with COVID-19 were reported in Gauteng (446, 33.8%) and KwaZulu-Natal 313 (23.7%), followed by the Eastern Cape (218, 16.5%) provinces. Of the HCWs who died, 819 (65.8%) had comorbid disease reported and 384 (30.8%) had more than one reported comorbidity.
- The fifth wave/resurgence predominated by Omicron BA.4/BA.5 began in week 16 of 2022 and the number of admissions among HCWs in this wave were 490, compared to 3892 in D614G wave 1, 3349 in Beta wave 2, 2307 in Delta wave 3 and 968 in Omicron BA.1 wave 4. The proportion of HCW admissions over total admissions for each wave were 5.3% (3892/72203), 2.8% (3349/117836), 1.5% (2307/151473) 1.8% (968/53812), 1.8% (490/27688) in the D614G, Beta, Delta, Omicron BA.1 and Omicron BA.4/BA.5 waves respectively.
- There were 28.0% (370/3892), 38.3% (506/3349), 28.86% (381/2307), 3.1% (42/968) and 1.6% (21/490) HCW deaths reported to DATCOV in the five waves respectively. The case fatality ratio (CFR) of HCWs in the five waves with known in-hospital outcomes reported to DATCOV was 9.6% (370/3853), 15.3% (506/3313), 16.7% (381/2288), 4.3% (42/966) and 4.3% (21/488).

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 19 March 2022, a total of 670 facilities, 408 from the public sector and 262 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 2020–17 December 2022

Provinces	Public	Private
Eastern Cape	86	18
Free State	35	20
Gauteng	39	99
KwaZulu-Natal	71	47
Limpopo	41	7
Mpumalanga	31	9
North West	17	13
Northern Cape	29	6
Western Cape	59	43
South Africa	**408**	**262**

Results

COVID-19 HCW admissions in Public and Private Sector

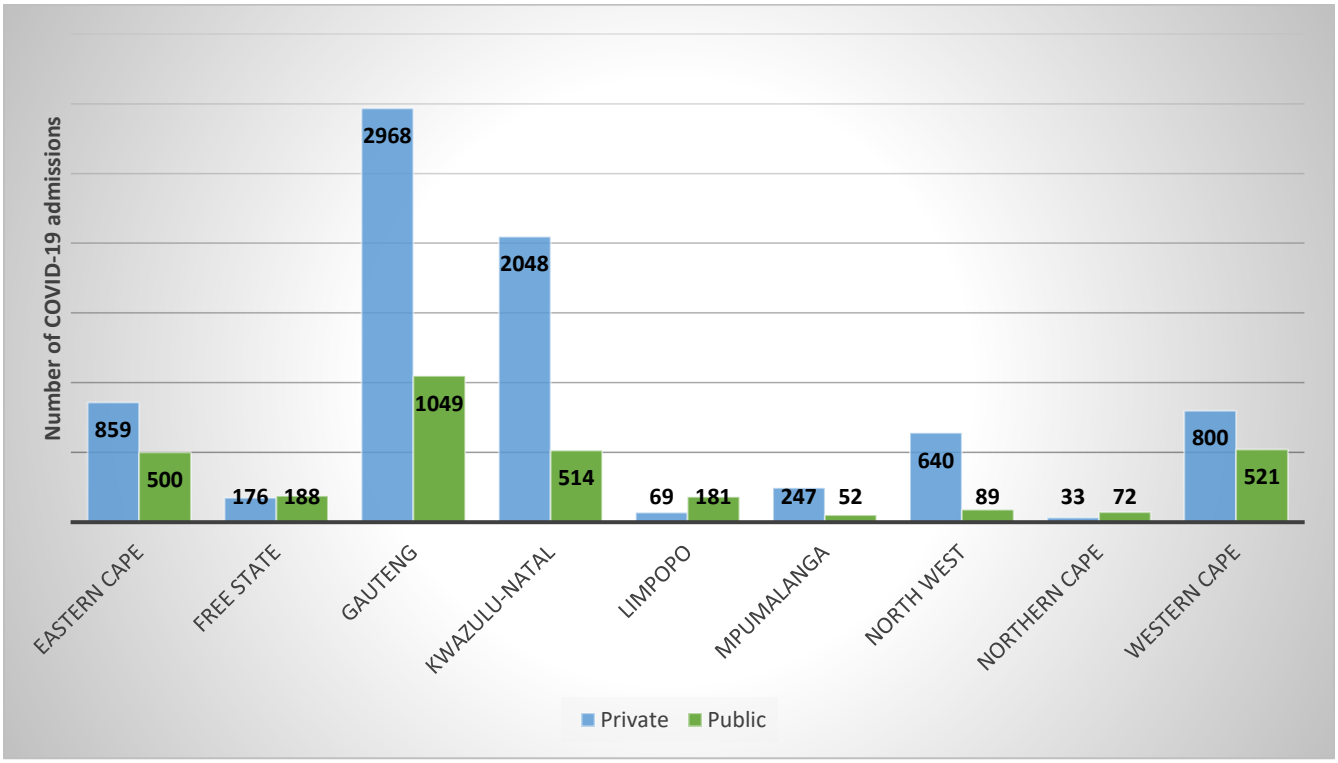

Figure 1: Number of reported COVID-19 admissions among HCWs by province and health sector, South Africa, 5 March 2020 – 17 December 2022 (n=11006).

Epidemiological trends in COVID-19 HCW admissions and in-Hospital mortality

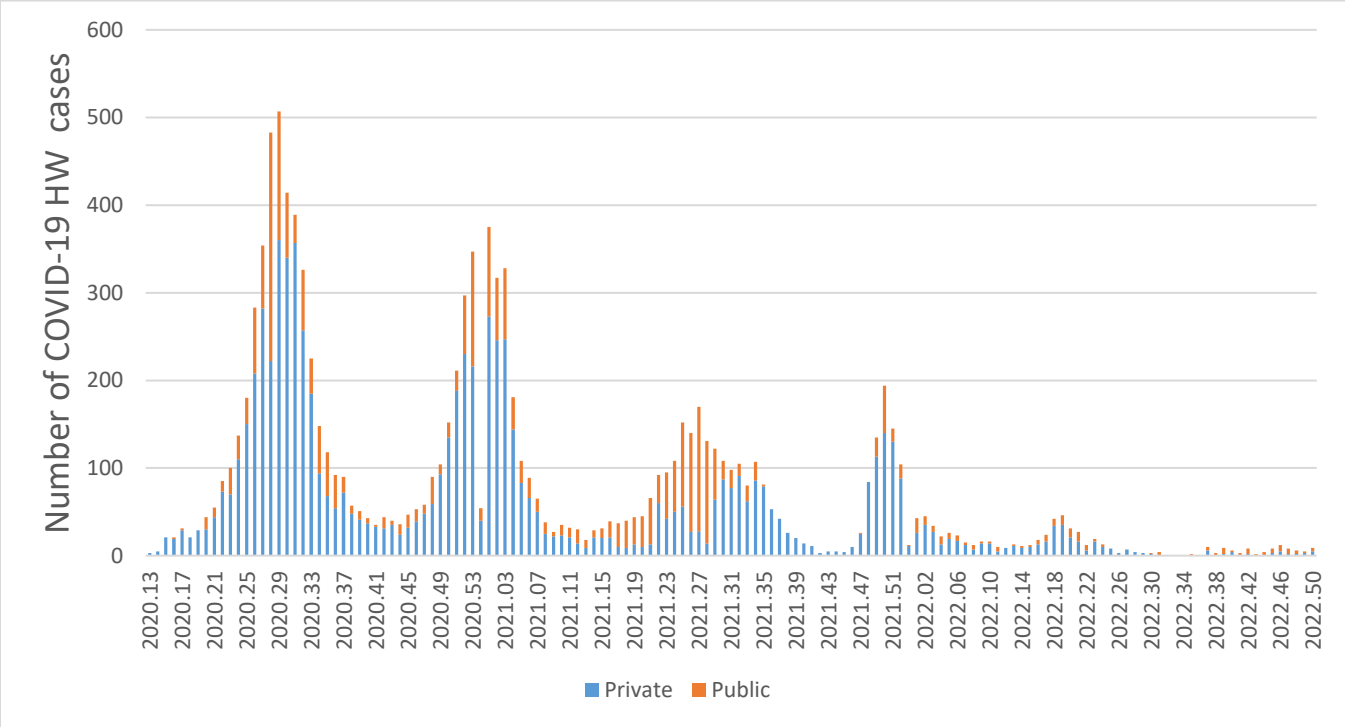

Figure 2: Number of reported COVID-19 admissions among HCWs by an epidemiologic week of diagnosis and health-sector, South Africa, 5 March 2020 – 17 December 2022 (n=11006).

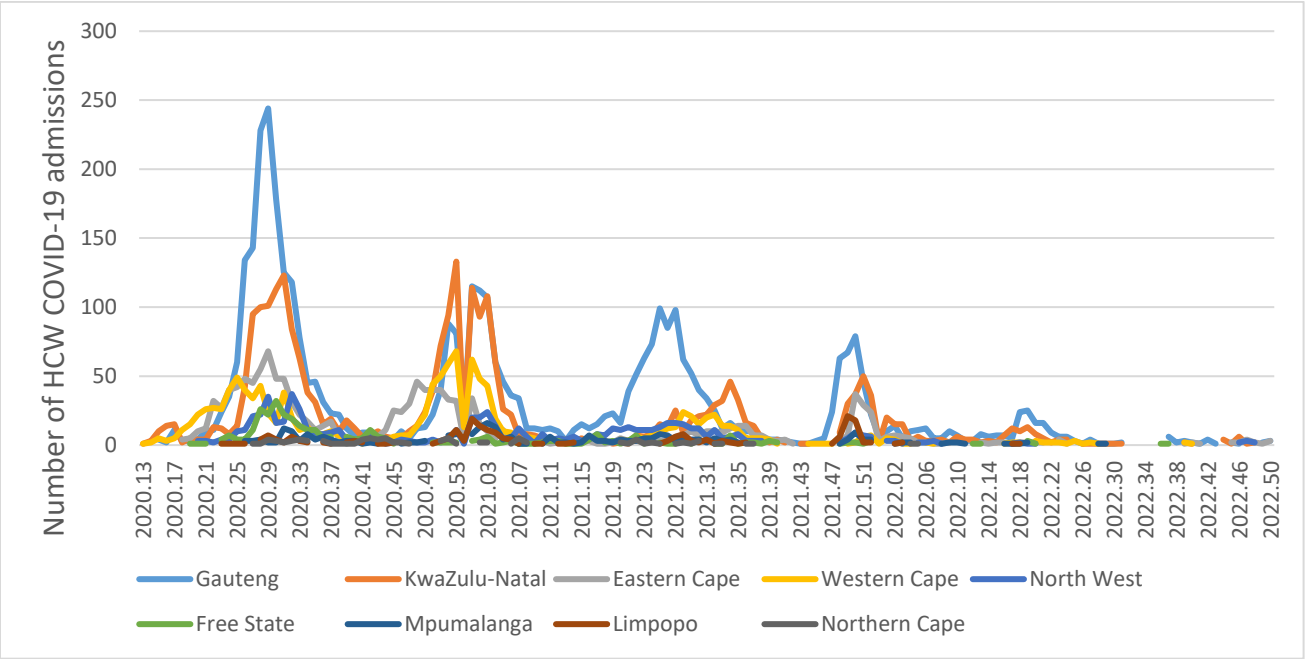

Figure 3: Number of reported COVID-19 admissions among HCWs by an epidemiologic week of diagnosis and provinces, South Africa 5 March 2020 – 17 December 2022 (n=11006).

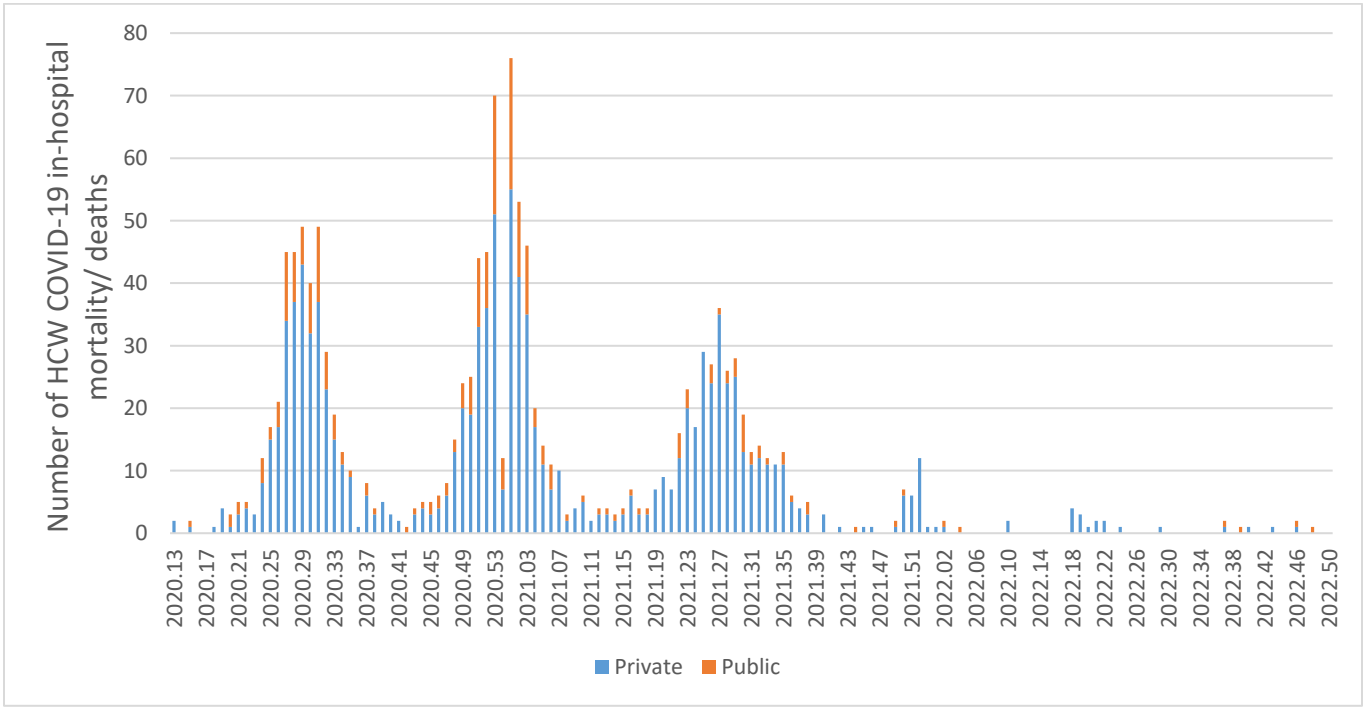

Figure 4. The number of reported COVID-19 deaths among admitted HCW by epidemiologic week in the private and public sector, South Africa, 5 March–17 December 2022. Please note that the mortality data presented was based on available information from reporting hospitals as of 13 November 2021. Deaths that were subsequently confirmed not to be of a HCW were removed from the data set

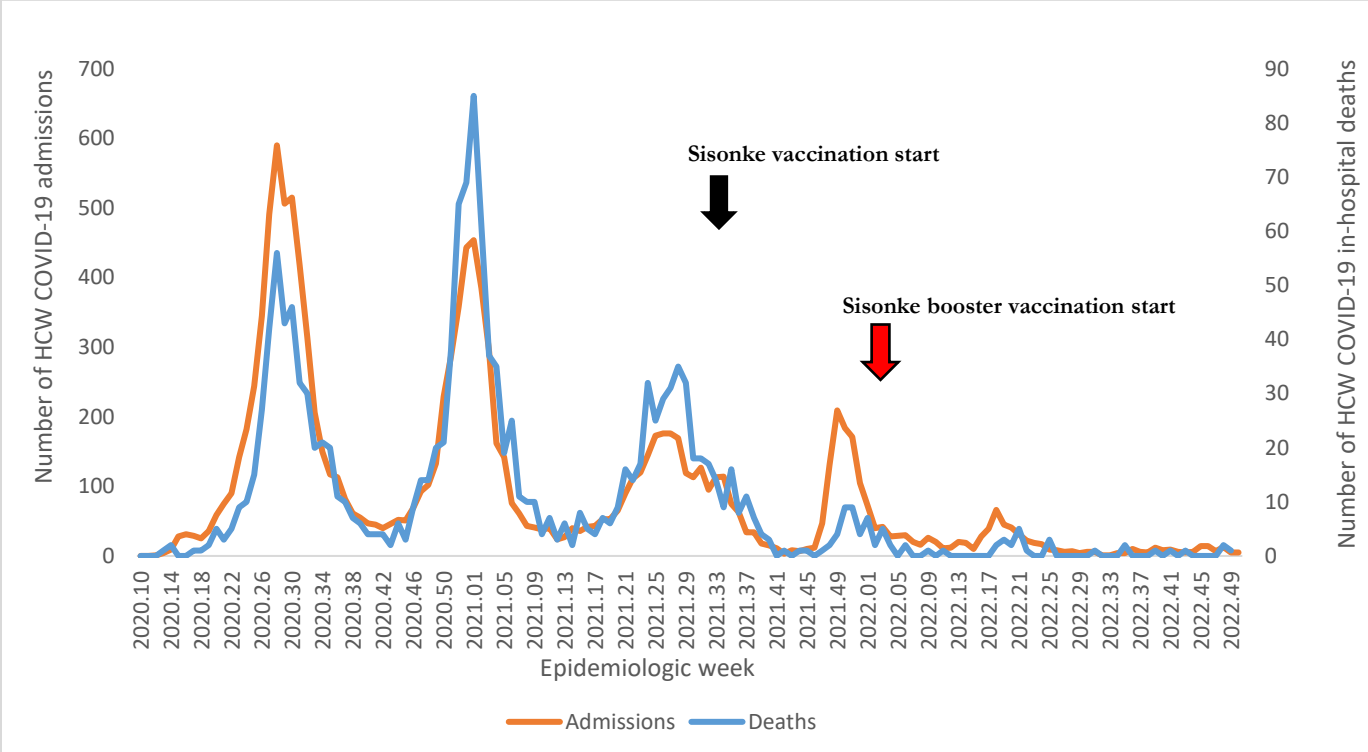

Figure 5: Impact of vaccination on COVID-19 HCW admissions and in-hospital mortality across South Africa, 5 March–17 December 2022

Demographic and clinical characteristics of HCWs admitted with COVID-19

Table 2: COVID-19 admissions among HCWs by age group and sex, South Africa, 5 March 2020 - 17 December 2022

Age Groups (years)	Female		Male		Total	
	n	%	n	%	n	%
20-29	632	8.5	176	4.9	808	7.3
30-39	1564	21.1	550	15.3	2114	19.2
40-49	1857	25.1	805	22.4	2662	24.2
50-59	2114	28.5	1007	28.0	3121	28.4
60 and above	1238	16.7	1063	29.5	2301	20.9
Total	7405		3601		11006	

Table 3: The number and prevalence of comorbid diseases in HCWs admitted with COVID-19, South Africa, 5 March 2020 – 17 December 2022 (n=5037).

Comorbid disease*	**Frequency (n)**	**Percentage (%)**
Hypertension	3322	69.14
Diabetes mellitus	2079	43.27
Chronic cardiac disease	171	3.56
Chronic pulmonary disease/Asthma	620	12.90
Chronic renal disease	56	1.17
Malignancy	42	0.87
HIV	442	9.20
Active tuberculosis	69	1.44
Previous history of tuberculosis	76	1.58

* 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.

Conclusions

Vaccination for HCWs in South Africa started in February 2021, and the Sisonke booster vaccine was introduced in November 2021. The trends in cases show a decline in HCW admission since week 20 of 2022. Overall, the number of HCW admission was lower in the third, fourth and fifth waves compared to the second and the first waves. The CFR of HCWs was higher in the second (Beta) and third (Delta) waves compared to the first (D614G), fourth and fifth (Omicron BA.1 BA.4/BA.5) waves. Acquired SARS-COV-2 immunity from prior infection and vaccination, or reduced virulence of the Omicron variant, or a combination of both factors may be attributed to reduced severe disease in the fourth wave (Wolter et al, 2022) and the fifth wave (Jassat et al, 2022).

Acknowledgements

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References

1. Wolter N, Jassat W, Walaza S, Welch R, Moultrie H, Groome M, Amoako DG, Everatt J, Bhiman JN, Scheepers C, Tebeila N. Early assessment of the clinical severity of the SARS-CoV-2 omicron variant in South Africa: a data linkage study. The Lancet. 2022 Jan 29;399(10323):437-46.

2. Jassat W, Karim SA, Ozougwu L, Welch R, Mudara C, Masha M, Rousseau P, Wolmarans M, Selikow A, Govender N, Walaza S. TRENDS IN CASES, HOSPITALISATION AND MORTALITY RELATED TO THE OMICRON BA. 4/BA. 5 SUB-VARIANTS IN SOUTH AFRICA. medRxiv. 2022 Jan 1.