

A retrospective descriptive study describing the patient profile of those who have died due to COVID-19 in the Ekurhuleni Health District, Gauteng, South Africa for the period of March 2020 – March 2022

Roxanne Govender, University of the Witwatersrand



BACKGROUND

South Africa recorded its first case of COVID-19 on 5 March 2020, and the first death was recorded on 27 March 2020.

Globally, it has been noted that the incidence of COVID-19 viral infections increases and decrease in cycles, resulting in infection-waves.

Ekurhuleni Health District (EHD) is one of three metropolitan municipalities in Gauteng and has a population of approximately 3.7million. EHD has been keeping a District-specific database on COVID-19 cases and deaths reported from both the public and private sectors.

Understanding the profile of patients who have died due to COVID-19 may help identify enablers and barriers to care, which in turn will aid in guiding future prevention and treatment plans.

OBJECTIVES

1.To describe the **patient profile** of all patients reported to have died from COVID-19 within Ekurhuleni health district, for the period March 2020 – March 2022, in terms of **biomedical and demographic factors**.

2.To describe the **profile** of patients reported to have died from COVID-19 within Ekurhuleni health district during **each of the four infection-waves**.

3.To determine and compare **risk factors** for mortality due to COVID-19 for patients in Ekurhuleni health district for the period March 2020 – March 2022.

METHODOLOGY

This study is a retrospective descriptive study, which used secondary data for the period 01 March 2020 – 31 March 2022.

Data was extracted from the EHD Database, patient identifiers were removed and variables were recoded into categorical data analysed in Stata. Analysis was performed by date of death (wave periods), co-morbid status and socio-demographic factors.

For Gauteng, and for EHD, the wave periods are as follows:

First wave:	1 June 2020	– 22 August 2020
Second wave:	7 December 2020	– 6 February 2021
Third wave:	10 May 2021	– 28 August 2021
Fourth wave:	22 November 2021	– 26 February 2022

RESULTS

4737 COVID-19 related deaths were reported in Ekurhuleni between 1 March 2020 – March 2022.

Table 1: Demographical profile of patients who died from COVID in EHD for the period under review.

Variable	Item	N	(% of total)
Gender	Male	2412	(49.09)
	Female	2325	(50.91)
Facility	Public	2818	(59.49)
	Private	1899	(40.01)
	Home	12	(0.00)
	Unknown	8	(0.00)
Co-morbidities	Yes	2657	(56.09)
	No	678	(14.31)
	Unknown	1402	(29.60)
Age (years)	0-24	65	(1.37)
	25-44	537	(11.34)
	45-64	1945	(41.06)
	≥65	2190	(46.2)

The majority of deaths were reported from public facilities and in people with co-morbidities.

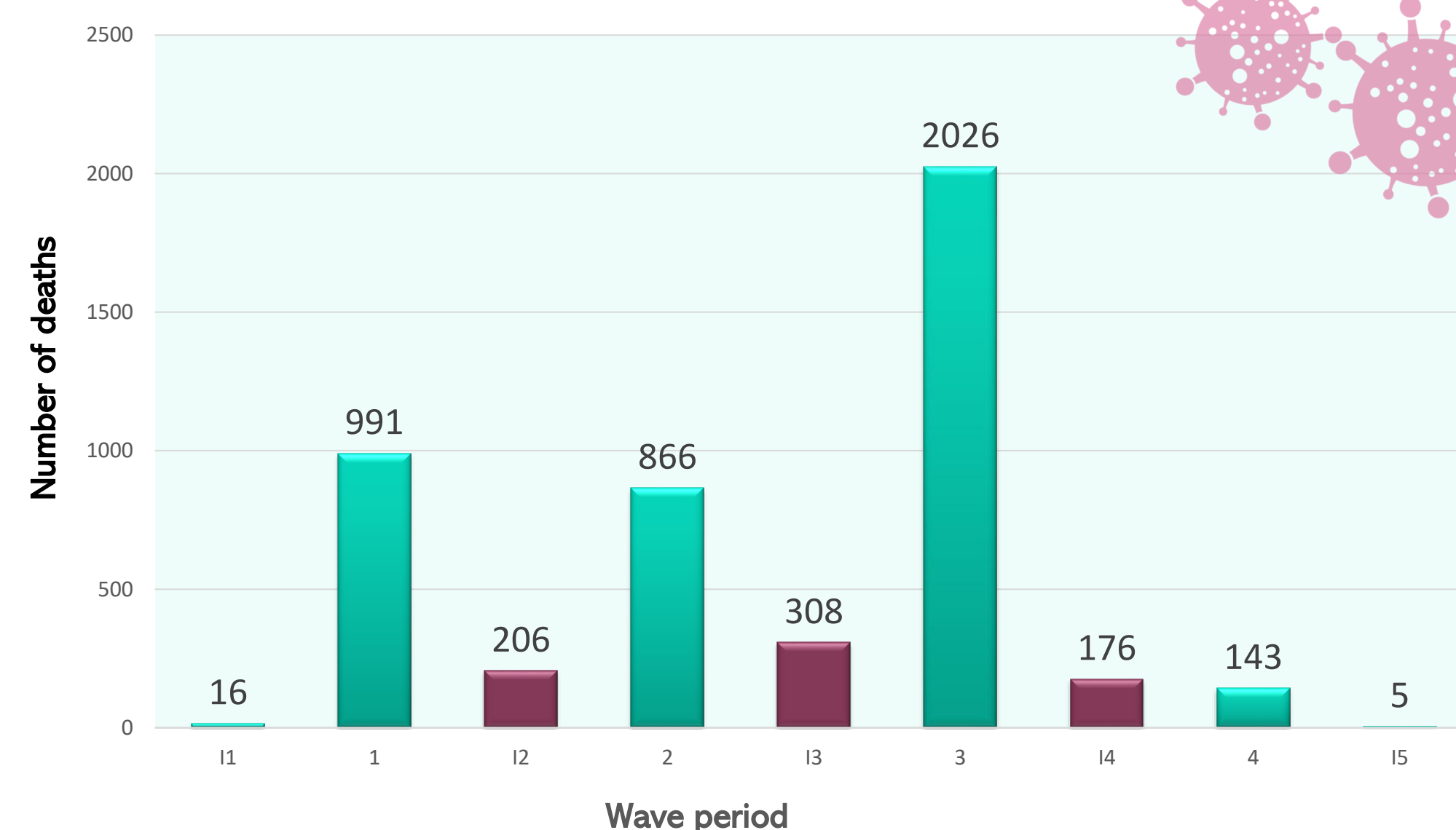


Figure 1: Deaths per wave period, including interwave periods.

Most deaths occurred during the third wave.

When looking at factors that were associated with increased mortality between the waves, statistically significant associations were found for age, facility type, admission diagnosis, subdistrict, presence of co-morbidities, and duration of admission. Gender was not found to be a significant factor.

Table 2: Distribution of deaths across EHD subdistricts.

Subdistrict	Population	Deaths	Deaths/10000
E1	613363	714	116
E2	381458	524	137
N1	713035	761	107
N2	629426	1002	159
S1	715991	1107	155
S2	610876	586	96
Unknown		43	

DISCUSSION

The elderly and those with co-morbidities were at the highest risk of death, in keeping with national and global trends. Theories explaining this include frailty and inflammatory responses.

Although the third wave showed the highest absolute numbers of COVID-19 cases and deaths, the highest case-fatality ratios were seen in the second wave, for both Ekurhuleni and the country as a whole. Reasons for this include the nature of the variants in circulation at the time, vaccination campaigns and lockdown regulations.

Subdistrict S1 had the highest number of deaths, but N2 had the highest proportion of deaths/population. This could be due to the distribution of health facilities. S1 has 25 facilities compared to N2 which has 31 facilities.

ADVOCACY MESSAGE

- ✳ Comprehensive and meaningful **data collection** must be continued and improved upon in the district. This type of approach to monitoring disease outbreaks and progression is vital to **effective public health strategies** and should be prioritised.
- ✳ **Uniform reporting methods** for data collection should be implemented with the standardised options for data input.
- ✳ Data collection on **co-morbidities** is to be strengthened, particularly for conditions of high importance to the country, such as HIV and TB.
- ✳ **Health promotion** should continue to be priority, in order to prevent chronic illnesses from occurring but also encourage better control of the condition and achieve a healthier population.

ACKNOWLEDGEMENTS

Supervisor: Professor Leena S Thomas
Ekurhuleni Health District officials