



# Characteristics of Hospital Onset SARS Cov-2 Infections Before and After the Emergence of The Highly Transmissible Variant B.1.1.529 In a Comprehensive Cancer Center

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## BACKGROUND & RESEARCH OBJECTIVE

- SARS-CoV-2 variant of concern B.1.1.529 (Omicron) was first identified in November 2021 in South Africa
- Omicron was notable for its increased transmissibility and rapid spread worldwide and led to a surge in COVID-19 cases in the United States during December 2021
- As a result, our comprehensive cancer center experienced a steep rise in cases among patients and employees at our institution starting December 22nd, 2021
- We compare the incidence and characteristics of hospital-onset COVID-19 (HO-COVID-19) in our cancer patients prior to and during the Omicron variant surge that spanned December 2021 – February 2022

## METHODS

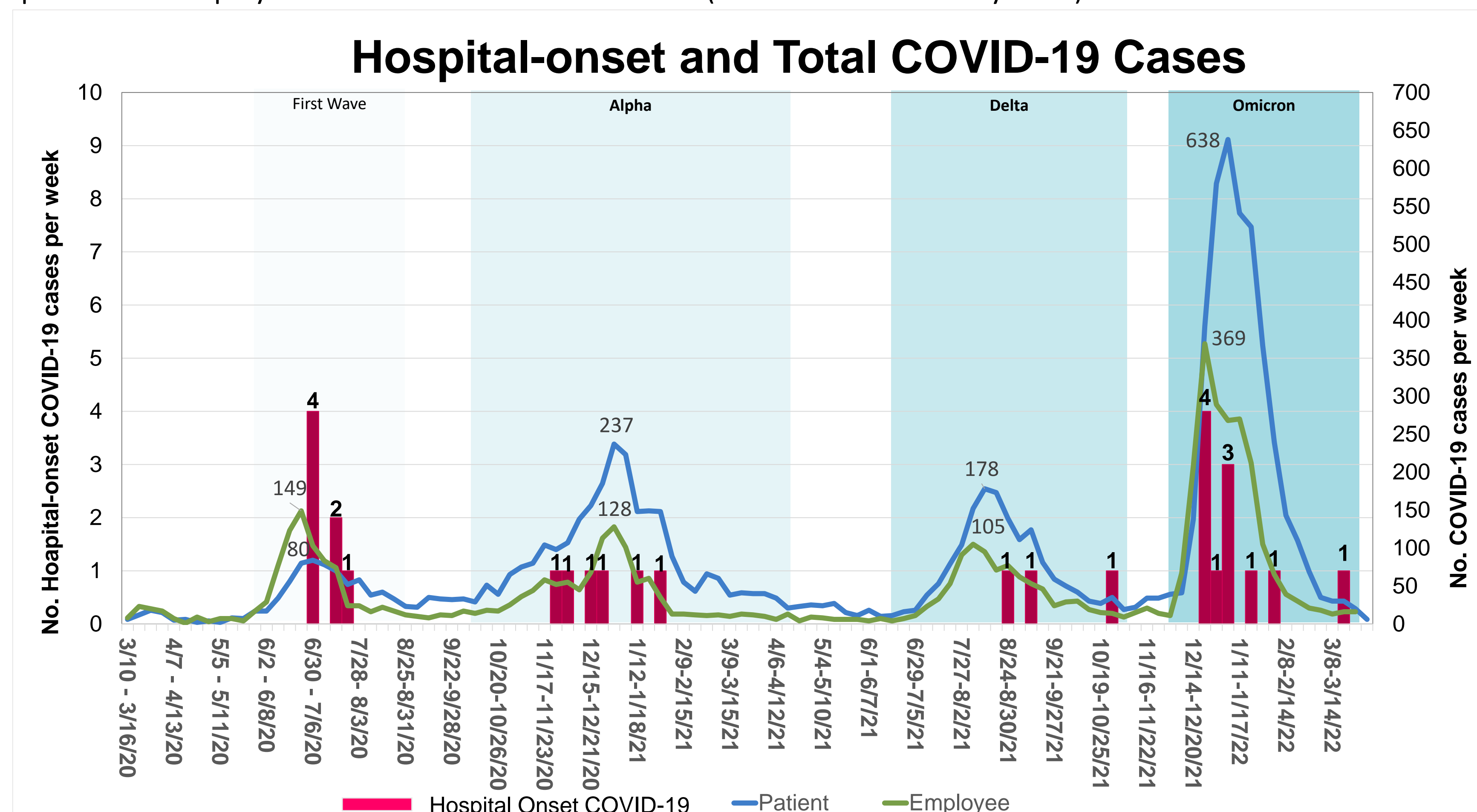
- From March 2020 – February 2022, we identified HO-COVID-19, as per the CDC definition, from our infection control surveillance database
- Additional contact tracing data was reviewed to determine infection links to employees or caregiver/visitors
- Whole-genome sequencing studies were conducted randomly on nasopharyngeal swabs of patients and employees who had COVID-19 during the study period to identify the Omicron variant

## RESULTS

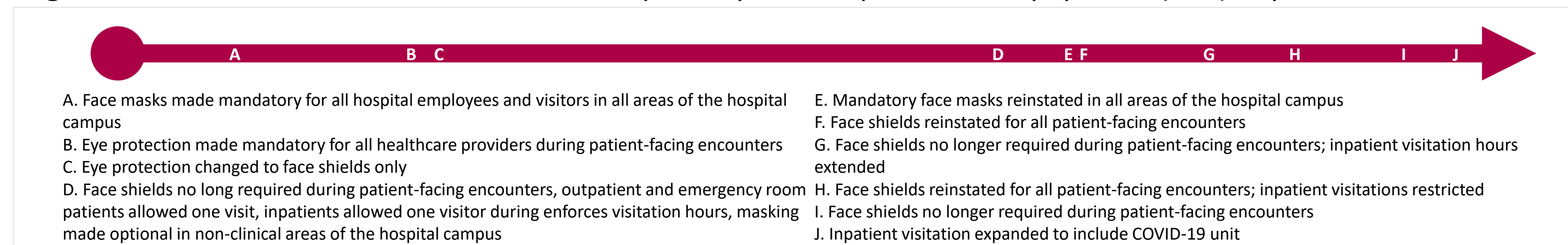
- Twenty-six HO-COVID-19 infections were identified from the beginning of the pandemic (March 2020) through February 2022 (Table 1)
- HO-COVID-19 occurred during the initial COVID-19 wave, followed by three COVID-19 surges that were epidemiologically attributed to variants (i.e., Alpha, Delta, Omicron)
- Only 16 cases occurred over 22 months from the beginning of the pandemic through early December 2021 (Figure 1A)
- Among these 16 patients, 12 (75%) were symptomatic, 9 (56%) had a link to an infected employee, 7 (44%) died during their hospitalization (3 of the deaths were attributable to COVID-19), and 10 (63%) recovered and were discharged.
- Over a 6-week period (December 22nd, 2021 - February 1st, 2022), 10 HO-COVID-19 were identified during the Omicron variant surge (Figure 1A).
- Six (60%) of these patients were symptomatic, 8 (80%) had a link to an infected employee, two died (one death was attributed to COVID-19), and 7 (70%) survived to discharged.

## FIGURES & TABLES

**Figure 1A.** Bar chart of hospital-onset COVID-19 cases graphed against line graphs of COVID-19 infections of patient and employee at MD Anderson Cancer Center (March 2020 - February 2022)



**Figure 1B.** Timeline of house-wide COVID-19-specific personal protective equipment (PPE) implementation



**Table 1.** Characteristics and demographics of patients with hospital-onset COVID-19 (March 2020-February 2022).

	HO-COVID-19 (Omicron)	HO-COVID-19 (pre-Omicron)
<b>Total number of HO-COVID-19</b>	10	16
<b>Hematologic malignancies</b>	6/10 (60%)	12/16 (75%)
<b>Males</b>	3 (30%)	8/16 (50%)
<b>Mean Age, years (range)</b>	60 (43 - 73)	53 (6 - 80)
<b>Number of clusters</b>	0	2
<b>Mean Hospital days to positive PCR, (range)</b>	30 (19-67)	28.5 (8-137)
<b>Symptomatic</b>	6/10 (60%)	12/16 (75%)
<b>Employee as a suspected link</b>	8/10 (80%)	9/16 (56%)
<b>Visitor or Caregivers as suspected link</b>	2/10 (20%)	3/16 (19%)
<b>Unknown source</b>	1/10 (10%)	5/16 (31%)
<b>Recovery</b>	7/10 (70%)	10/16 (63%)
<b>Death</b>	2/10 (20%)	7/16 (44%)

**Abbreviations:** HO-COVID-19, hospital-onset COVID-19 infections; PCR, polymerase chain reaction

## CONCLUSIONS

- The Omicron variant surge led to marked increases in HO-COVID-19 despite the continuous adoption of enhanced infection control practices (Figure 1B), testing on admission, and daily symptoms screening of patients and employees

## ACKNOWLEDGEMENTS

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