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BACKGROUND

- The B.1.1.529 (Omicron) variant of SARS-CoV-2, the virus that causes COVID-19, was first clinically identified in the United States on December 1, 2021.¹
- By late December, it became the predominant strain, and by January 15, 2022, it represented 99.5% of sequenced specimens in the United States.¹
- The highest 7-day moving average of cases (798,976), emergency department visits (48,238), and admissions (21,586) were reported during the Omicron period, however, the highest daily 7-day moving average of deaths (1,854) was lower than during previous periods.¹

Daily Trends in Number of Cases and Cumulative Incidence Rate of COVID-19 Cases in Florida Reported to CDC, per 100,000 population.

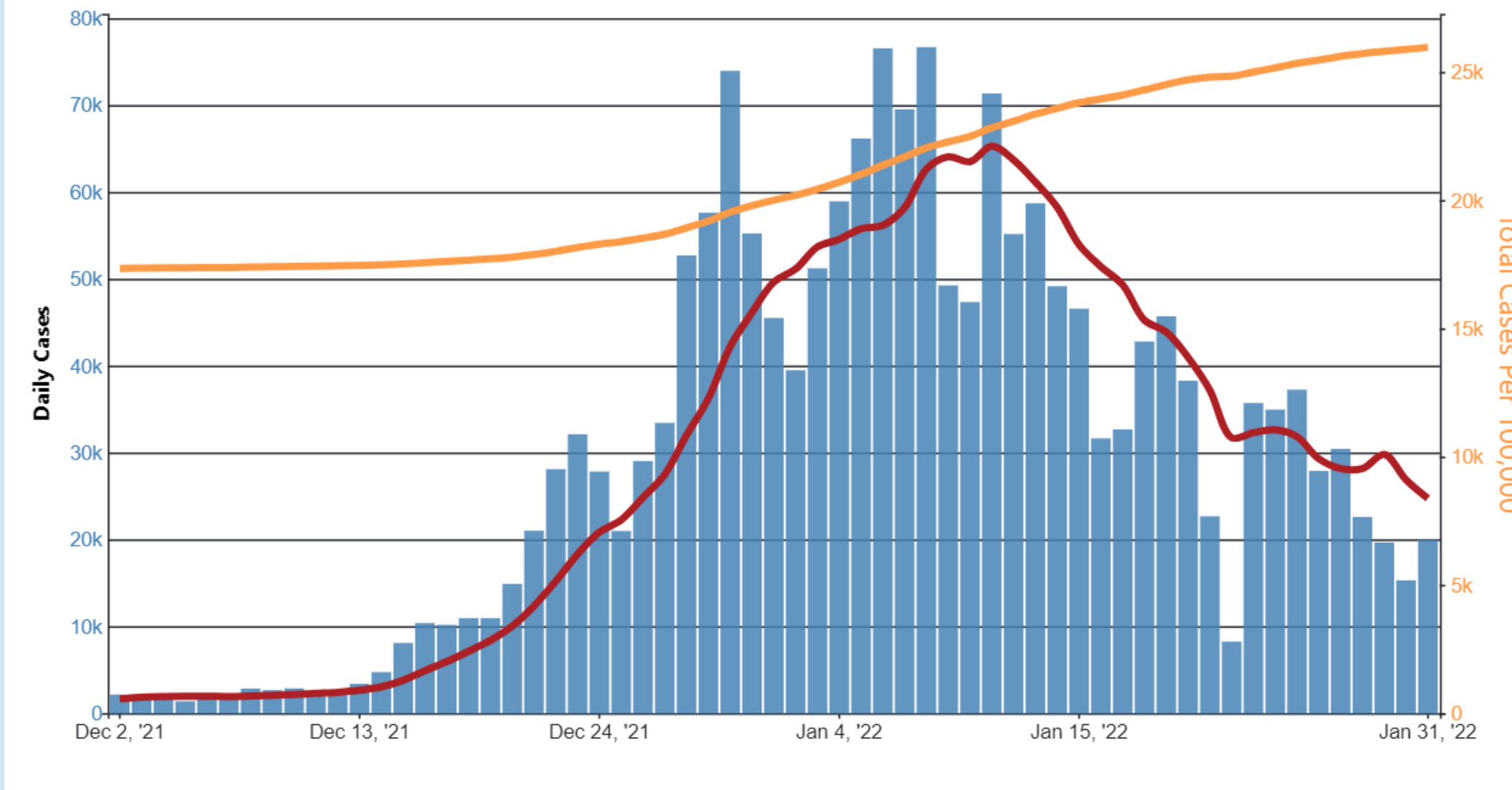


Figure 1. Daily Trends in Number of Cases and Cumulative Incidence Rate of COVID-19 Cases in Florida Reported to CDC, per 100,000 population from Dec 2, 2022 – Jan 31, 2022.²

- We aimed to characterize Omicron severity by assessing in-hospital deaths and intensive care admissions in a large healthcare system in South Florida during an omicron predominant surge.

METHODS

- A single-center, open-labeled, retrospective study of consecutive patients diagnosed with COVID-19 Omicron variant in the MHS between January 1 and January 14, 2022. Patient's demographic and clinical characteristics, type of treatment, and clinical outcomes were reviewed and analyzed.
- Approximately 500 medical records were reviewed at MHS in patients that met the inclusion criteria.
- Inclusion criteria: All consecutive adult patients (aged 18 years or older) who were admitted to MHS facilities with a positive PCR results for COVID-19 on the date of admission/within 24hrs of admission to MHS, between January 1 and January 14, 2022
- Risks of in-hospital mortality and intensive care admission were estimated using logistic regression models. Analyses were stratified by age ≥65 years and vaccination status, and further adjusted for sex, comorbidities, and history of a previous COVID-19 infection.

RESULTS

Table 1. Demographics of patients hospitalized for COVID-19 omicron

Age, yrs	
Median (IQR)	69 (53-80)
Sex, n (%)	
Male	229 (45.8)
Female	271 (54.2)
Race, n (%)	
White	313 (62.6)
Black	173 (34.6)
Other	14 (2.8)
Smoking history, n (%)	181 (36.2)
Previous SARS-CoV-2 infection, n (%)	
Yes	32 (6.4)
No	444 (88.8)
Unknown	24 (4.8)
COVID-19 vaccination status, n (%)	
Unvaccinated	221 (44.2)
Fully vaccinated	260 (52)
Unknown	19 (3.8)
Comorbidities, n (%)	
Hypertension	326 (65.2)
Diabetes	160 (32)
COPD	43 (8.6)
Chronic kidney disease	120 (24)
Coronary heart disease	100 (20)
Active malignancy	31 (6.2)
History of malignancy	52 (10.4)
Solid organ transplantation	12 (2.4)
Bone marrow transplantation	3 (0.6)
HIV	6 (1.2)

Table 2. Symptoms and lab findings on admission

	Total (n=500)
Initial symptoms/signs	
Cough	218 (43.6)
Runny nose	25 (5)
Chest pain	52 (10.4)
Difficulty breathing	243 (48.6)
Diarrhea	61 (12.2)
Headache	25 (5)
Body temperature, ≥ 38°C	92 (18.4)
Lab findings, median (IQR)	
WBC count, × 103 cells/μL	7 (5-10)
Neutrophils, × 103 cells/μL	5 (3.3-7.5)
Lymphocytes, × 103 cells/μL	1.0 (0.7-1.5)
D-dimer, μg/mL	1.3 (0.7-2.9)
C-reactive protein, mg/L	6.5 (2.4-12.2)
Ferritin, ng/mL	339.6 (142.5-696.0)
LDH, U/L	288 (217.5-412)
AST, U/L	35 (24-52)
ALT, U/L	30 (21-48)
Creatinine, mg/dL	1.0 (0.8-1.5)

Table 3. Diagnosis and outcomes of patients with COVID-19

	Total (n=500)
Type of COVID-19 diagnosis, n (%)	
COVID-19 pneumonia	257 (51.4)
COVID-19 extrapulmonary manifestations	82 (16.4)
Incidental COVID-19	161 (32.2)
Interventions, n (%)	
Oxygen supply	252 (50.4)
Mechanical ventilation	44 (8.8)
Dialysis	40 (8)
Outcomes, n (%)	
ICU admission	54 (10.8)
In-hospital death	45 (9)
Active	49 (9.8)
Recovered	406 (81.2)

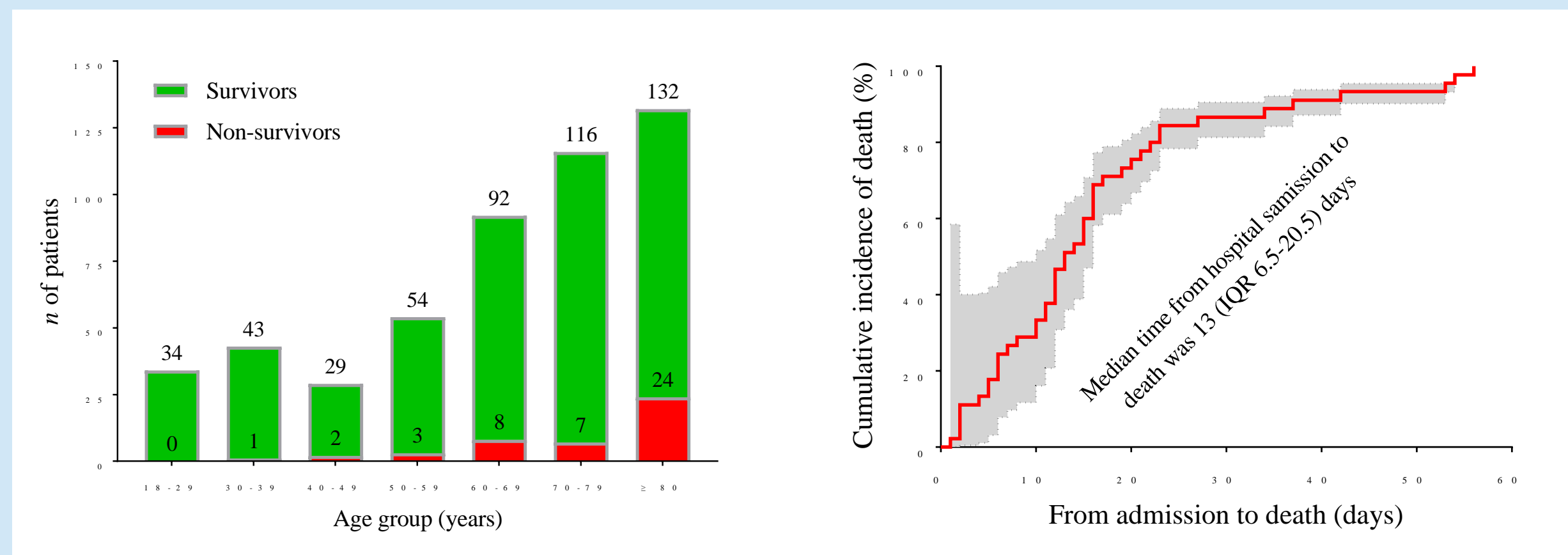


Figure 2. Left: Distributions of survivors and non-survivors among hospitalized COVID-19 Omicron patients at different age groups; Right: Death curve of non-survivors with COVID-19 omicron in the South Florida area, January 1-14, 2022.

RESULTS

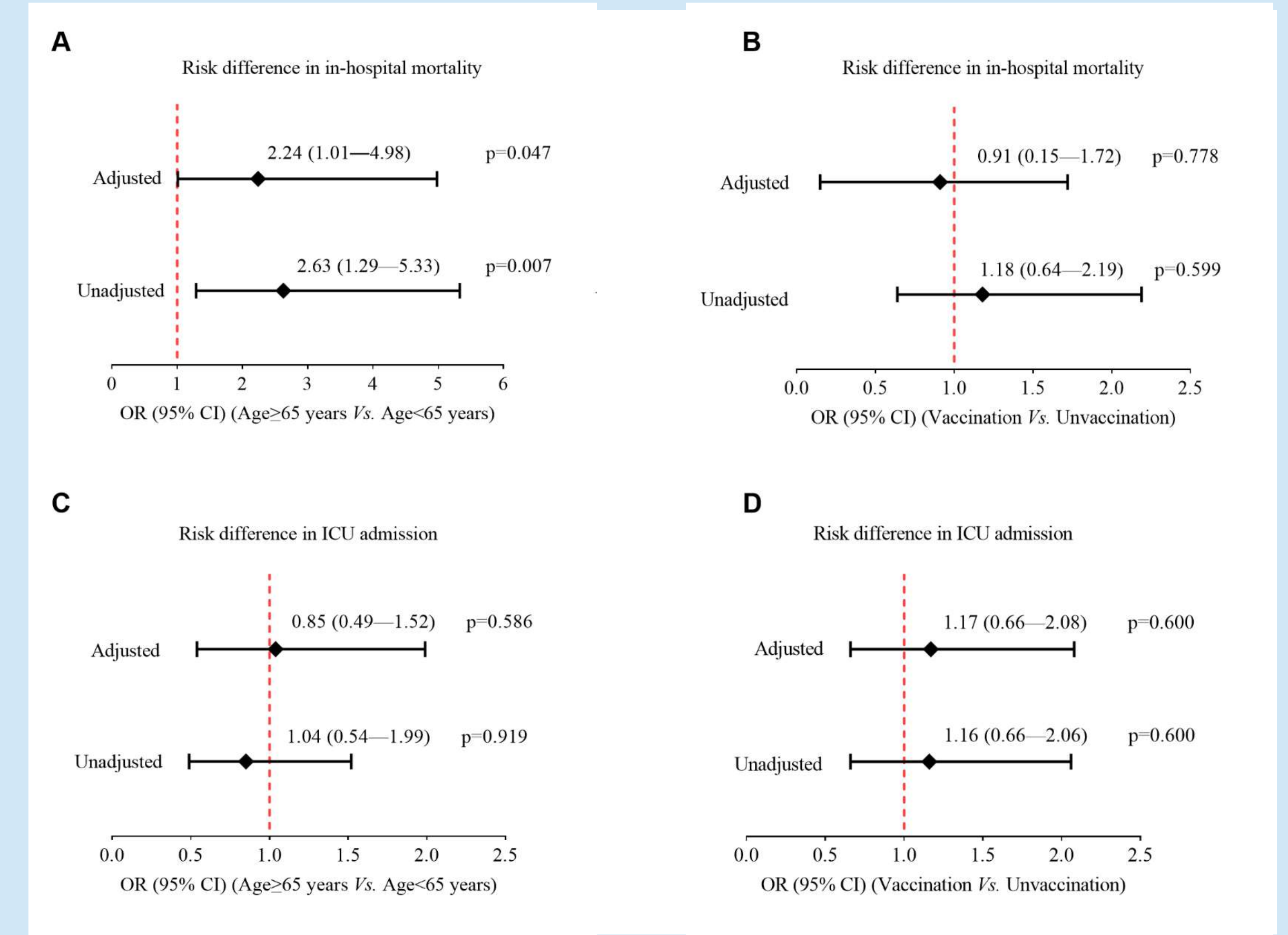


Figure 3. Forest plots showing association of age and vaccination status with COVID-19 omicron patient outcomes. A-B. In-hospital mortality (death); C-D. Admission to ICU. Patients aged ≥65 years had 2.6 times higher rates for in-hospital mortality than those aged < 65 years, but were comparable for ICU admission. Past vaccination offered no protection against in-hospital mortality or ICU admission

CONCLUSIONS

- This study provides characteristics and outcomes of hospitalized adult patients with COVID-19 Omicron variant.
- Patients aged ≥65 had 2.6 times higher rates for in-hospital mortality than those aged < 65 years.
- Vaccination against SARS-CoV-2 with currently available vaccines did not impact in-hospital mortality or ICU admission rate in patients infected with Omicron variant.
- With rapid evolution of SARS-CoV-2 virus, it is challenging to have effective vaccine and monoclonal antibody treatment.

REFERENCES

1. Iuliano AD, Brunkard JM, Boehmer TK, et al. Trends in Disease Severity and Health Care Utilization During the Early Omicron Variant Period Compared with Previous SARS-CoV-2 High Transmission Periods — United States, December 2020–January 2022. MMWR Morb Mortal Wkly Rep 2022;71:146–152.
 2. Centers for Disease Control and Prevention. COVID Data Tracker. Atlanta, GA: US Department of Health and Human Services, CDC; 2022, July 31. <https://covid.cdc.gov/covid-data-tracker>