

# Mortality, Major Thromboembolic Events, and Major Adverse Cardiovascular Outcomes in Patients with Various Smoking Histories Diagnosed with COVID-19



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## Introduction

Respiratory symptoms are accentuated in patients with COVID-19 and underlying lung disease. Smoking has been associated with adverse outcomes in a variety of acute respiratory illnesses, including COVID-19.

## Objective

We examined mortality, major thromboembolic outcomes, and major adverse cardiovascular events in patients with and without a history of smoking who tested positive for COVID-19.

## Methods

Of 399 patients hospitalized with COVID-19 in the Mass General Brigham system, we assessed 162 patients with smoking history (prior and current) and 237 patients without. We compared the rates of death and adjudicated major thromboembolic and cardiovascular events in this cohort.

## Results

Patients with any smoking history were 35.8% female and 34.0% non-white. Their mean age was 67.0 years compared to 57.2 years in patients without ( $P < 0.001$ ). Mortality rates in patients with either type of smoking history were 21.4% compared to 8.9% in patients without ( $P < 0.001$ ).

Frequencies of major thromboembolic or cardiovascular events were similar regardless of smoking history (18.5% and 27.2% vs. 15.2% and 20.3%, respectively,  $P = 0.38$ ).

Patients with prior or current smoking history that are hospitalized with COVID-19 experienced higher mortality rates than those without any smoking history.



**Table 1.** Hospitalized patient demographics

Characteristics	Smoking History N = 162 n (%)	No Smoking History N = 237 n (%)
Age, mean, years	67.0	57.2
Female, n (%)	58 (35.8)	112 (47.3)
Non-White, n (%)	55 (34.0)	130 (54.9)
History of CVD, n (%)	44 (27.2)	61 (25.7)
History of COPD, n (%)	47 (29.0)	49 (20.7)

**Table 2.** Hospitalized patient outcomes

Characteristics	Smoking History N = 162 n (%)	No Smoking History N = 237 n (%)
Mortality Rate, n (%)	34 (21.4)	21 (8.9)
Thrombotic Event, n (%)	30 (18.5)	36 (15.2)
Cardiovascular Event, n (%)	44 (27.2)	48 (20.3)

## Conclusions

Despite a significant correlation between smoking history and mortality in patients with COVID-19, we observed similar rates of major thromboembolic and cardiovascular events in both groups. Continued investigation is warranted in patients with smoking history to determine how to prevent COVID-19 related mortality.