

Chest Infections

SESSION TITLE: Chest Infections Scientific Abstract Posters (F): Infections in the immunocompromised host, Viral infections

SESSION TYPE: Original Investigation Posters

PRESENTED ON: 10/20/2026 01:45 pm - 02:30 pm

TRENDS IN MECHANICAL VENTILATION AND LENGTH OF STAY AMONG ADULTS HOSPITALIZED WITH INFLUENZA BEFORE AND DURING THE COVID-19 ERA

CARLOS GRACIDAS RAKEEM LEVY CARLOS O'LEARY AND JOSEPH VARON

PURPOSE: Influenza can precipitate severe respiratory illness and systemic complications in adults, and its clinical course may have been influenced by changes in healthcare delivery during the COVID-19 era. During this period, shifts in hospital capacity, respiratory management strategies, and the threshold for invasive mechanical ventilation may have changed inpatient outcomes.

METHODS: We performed a retrospective cross-sectional analysis of the National Inpatient Sample (NIS) from 2018 to 2021, including adult hospitalizations with primary diagnosis of influenza (ICD-10 J09-J11). The primary outcome was use of invasive mechanical ventilation (IMV), identified using ICD-10-PCS procedure codes (5A1935Z, 5A1945Z, 5A1955Z). The secondary outcome was length of stay (LOS). Multivariable logistic regression was performed to identify independent predictors of IMV, while LOS was analyzed using linear regression on log-transformed LOS [$\ln(\text{LOS}+1)$]. Models were adjusted for age, sex, race, and major clinical comorbidities. Statistical significance was set at $p < 0.05$.

RESULTS: A total of 78,704 hospital admissions with a primary diagnosis of influenza were identified. Hospitalization during the COVID era was independently associated with a higher likelihood of invasive mechanical ventilation compared with the pre-COVID period (inverse of pre-COVID OR: 1.20, 95% CI 1.18-1.23; $p < 0.001$). Additional independent predictors of IMV included congestive heart failure, alcohol use disorder, cirrhosis, and chronic kidney disease. In adjusted linear regression analysis, hospitalization during the COVID era was associated with a modest but significant increase in length of stay (2%). Congestive heart failure (18%), alcohol use disorder (11%), cirrhosis (9%), and chronic kidney disease (6%) were associated with prolonged hospitalization.

CONCLUSIONS: Among adults with influenza, the COVID-19 era was associated with significantly higher use of invasive mechanical ventilation and a small but meaningful increase in length of stay. Compared with the pre-COVID period.

CLINICAL IMPLICATIONS: Increased use of invasive mechanical ventilation and longer hospitalizations among adults hospitalized with influenza during the COVID-19 era highlight the need for optimized respiratory management and efficient resource allocation during periods of healthcare system pressure. Improving critical care preparedness and ensuring adequate ICU capacity during seasonal influenza outbreaks should remain a priority for healthcare systems.

DOI: <https://doi.org/10.1016/j.chest.2026.07.938>

Copyright © 2026 American College of Chest Physicians. Published by Elsevier Inc. All rights are reserved, including those for text and data mining, AI training, and similar technologies.