

Effectiveness of Pfizer-BioNTech and Moderna Vaccines Against COVID-19 Among Hospitalized Adults Aged ≥ 65 Years — United States, January–March 2021

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Adjusted vaccine effectiveness (VE) against COVID-19–associated hospitalization among adults aged ≥ 65 years was estimated

≥ 65 years. Vaccination is a critical tool for reducing severe COVID-19 in groups at high risk.

Randomized clinical trials of vaccines that have received an EUA in the United States showed efficacy of 94%–95% in preventing COVID-19–associated illness (5). However, hospitalization is a rare outcome among patients with COVID-19–associated illness of any severity, so most cases detected in the trials did not lead to hospitalization; therefore, the studies had limited power to assess protection against severe COVID-19 among older adults. Postmarketing observational studies are important to assess VE against COVID-19–associated hospitalizations in adults aged ≥ 65 years under real-world conditions and to strengthen evidence from clinical trials of vaccine efficacy. A standard approach to postmarketing VE evaluation involves the test-negative design in which vaccine performance is assessed by comparing the odds of antecedent vaccination among case-patients with acute laboratory-confirmed COVID-19 and control-patients without acute COVID-19 (6).

†Partially vaccinated is defined as receipt of 1 dose of a 2-dose vaccine series (Pfizer-BioNTech or Moderna vaccines) 14 days before illness onset or 2 doses with the second dose received <14 days before illness onset. Fully vaccinated is defined as receipt of both doses of a 2-dose vaccine series, with the second dose received ≥ 14 days before illness onset.

TABLE. Characteristics of adults aged ≥ 65 years with COVID-19–like illness* tested for SARS-CoV-2 infection, by COVID-19 case status[†] — 24 medical centers in 14 states,[§] January–March 2021

Characteristic	Case status, no. (column %)			p-value
	Total (N = 417)	Case-patients (n = 187)	Control participants (n = 230)	

Month of admission

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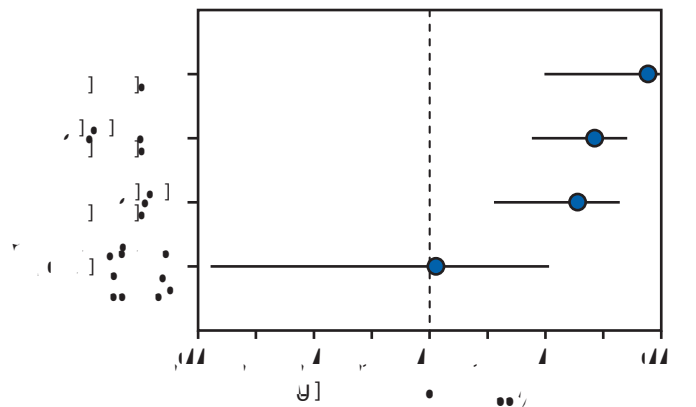
of receipt of Pfizer-BioNTech and Moderna vaccines was similar (53% and 47%, respectively, among those vaccinated with 1 dose). Adjusted VE for full vaccination using Pfizer-BioNTech or Moderna vaccine was 94% (95% CI = 49%–99%), and adjusted VE for partial vaccination was 64% (95% CI = 28%–82%) (Figure). There was no significant effect for receiving the first dose of a 2-dose COVID-19 vaccine series within 14 days before illness onset (adjusted VE = 3%, 95% CI = 94%–51%).

Discussion

Monitoring the effectiveness of SARS-CoV-2 vaccination under routine public health use and specifically against severe outcomes in patients at higher risk, including older adults, is a high priority. In this multistate analysis of adults aged 65 years, receipt of an authorized COVID-19 vaccine was associated with significant protection against COVID-19 hospitalization.

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FIGURE. Adjusted* vaccine effectiveness (with 95% confidence intervals) against COVID-19 among hospitalized† adults aged 65 years, by vaccination status§ — 24 medical centers in 14 states, January–March 2021



Abbreviations:

† Hospitalized adults aged 65 years, by vaccination status § — 24 medical centers in 14 states, January–March 2021

vaccination but cannot establish causation. Finally, duration of VE and VE for nonhospitalized COVID-19 was not assessed.

During January–March 2021, in a multistate network of U.S. hospitals, vaccination was associated with a reduced risk for COVID-19–associated hospitalization among adults

