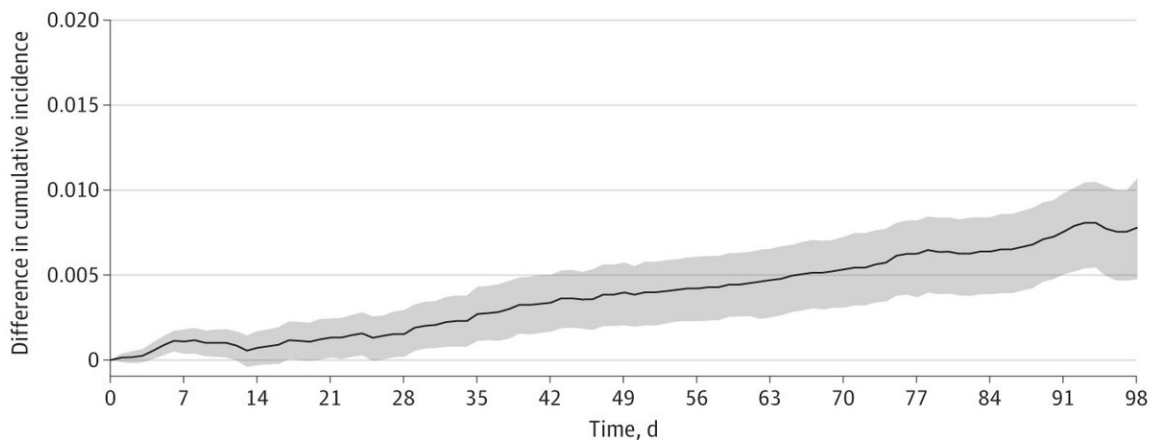
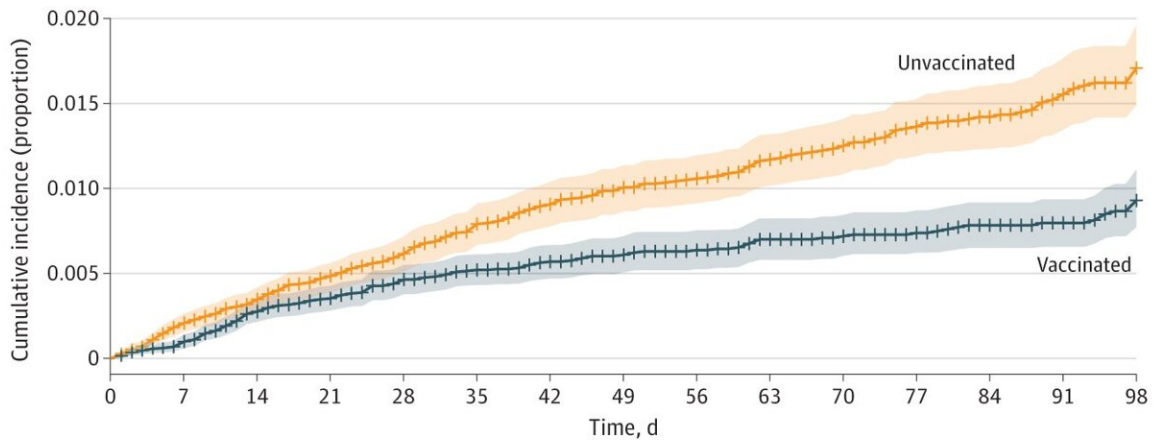


COVID-19 vaccine effective in people with cancer

December 7 2021, by Krista Conger



Cumulative No. of events		0	7	14	21	28	35	42	49	56	63	70	77	84	91	98
Unvaccinated		0	57	91	121	147	178	197	212	219	233	242	253	258	267	275
Vaccinated		0	27	70	87	109	119	127	133	137	145	147	149	153	154	161
No. at risk		0	7	14	21	28	35	42	49	56	63	70	77	84	91	98
Unvaccinated		29152	26025	22983	20467	18482	16781	15279	13988	12675	11335	9918	8807	7306	5851	4292
Vaccinated		29152	26123	23140	20700	18767	17139	15706	14469	13197	11889	10478	9357	7833	6320	4665

Figure 1. Cumulative Incidence of SARS-CoV-2 Infection After First Vaccine Dose in the Overall Matched Cohort. Cumulative incidence curves of SARS-

CoV-2 infection in the overall matched cohort using time zero as the date of the first dose of vaccination. The difference in cumulative incidence is illustrated in the gray bottom graph. Shaded areas indicate 95% CIs calculated by bootstrapping. Credit: DOI: 10.1001/jamaoncol.2021.5771

The mRNA-based COVID-19 vaccines are effective at preventing infection in most cancer patients, according to a nationwide study of veterans diagnosed with cancer in the past decade.

But the researchers found that some vaccinated patients, including those who had received therapies that suppressed their immune systems within the six months before vaccination, were less protected than their peers from COVID-19 infection for the duration of the study.

"We know that, in general, cancer patients with COVID-19 have poor outcomes," said postdoctoral scholar Julie Tsu-Yu Wu, MD, Ph.D. "Our goal was to identify those patients who might benefit from additional interventions like a [vaccine](#) booster shot or who should be candidates after exposure for prophylactic interventions like oral antivirals or monoclonal antibody treatments. But the main finding of our study is that COVID-19 vaccination is an effective way to prevent infection in most cancer patients."

Wu shares lead authorship of the study, which was published Dec. 2 in *JAMA Oncology*, with Jennifer La, Ph.D., a principal data scientist at the Veterans Affairs Boston Healthcare System. Senior authors of the study are Albert Lin, MD, staff physician at the VA Palo Alto Health Care System; Nikhil Munshi, MD, staff physician at VA Boston and professor of medicine at Harvard Medical School; and Nathanael Fillmore, Ph.D., associate director of the Cooperative Studies Program Informatics Center at VA Boston and instructor of medicine at Harvard Medical

School.

"This study highlights the strengths of the national VA health care system," Fillmore said. "Access to high-quality data from veterans across the country was crucial for enabling the study's rigorous trial emulation approach."

COVID-19 risky for cancer patients

Many cancer patients infected with COVID-19 have poor outcomes, with an estimated mortality rate of 13% to 33%. But because [cancer patients](#) were excluded from early [vaccine trials](#), it hasn't been clear whether or to what extent the mRNA-based COVID-19 vaccines protect people with cancer.

The researchers studied the medical records of more than 180,000 VA patients who received systemic, or whole-body, treatments, including chemotherapy or hormone therapy, between August 2010 and May 2021. The patients' median age was 73.7, and 94% were men. Of these, about 113,000 were vaccinated with one of the two mRNA-based vaccines approved by the Food and Drug Administration—Pfizer BioNTech and Moderna—between Dec. 15, 2020, and May 4, 2021. (People who had been previously diagnosed with COVID-19 were excluded from the study, as were those who received the adenovirus-based vaccine produced by Johnson & Johnson.)

For each day of the study period, the researchers matched a patient who had been vaccinated with a peer of similar medical history and demographic background who had not been vaccinated, comparing the rates of COVID-19 infection in each pair.

To calculate vaccine effectiveness, the researchers compared the number of COVID-19 diagnoses in the vaccinated and unvaccinated groups. If

10 of 100 unvaccinated people became infected versus 1 of 100 vaccinated people, the vaccine prevented 9 of 10 possible infections, and the vaccine effectiveness would be 90%.

Effectiveness depends on timing

The researchers found that, overall, the vaccines were about 58% effective at preventing infection starting at two weeks after the second dose. But the vaccines were about 85% effective in people whose last cancer treatment had concluded six or more months before their first dose. The vaccines were about 63% effective among people whose cancer treatments concluded three to six months before their first dose, and 54% among people whose treatments concluded within three months of their first dose. (The two vaccines were similarly effective.)

Systemic cancer treatments include chemotherapy, which can suppress the immune system, and hormone therapy, which is less likely to do so. Among people whose cancer treatments concluded less than three months before their first dose, the vaccine was about 57% effective in those who had received chemotherapy; it was about 76% effective in people who had received hormone [treatment](#). (The vaccines were found to be substantially less effective in a small subset of patients with certain kinds of blood cancers, which can suppress the [immune system](#).)

"This is the first study in people with [cancer](#) that looked at a clinically significant outcome—documented infection—rather than surrogate markers like the levels of antibody production," Wu said. "We found that, although the vaccines tended to be less effective in some subgroups of people, there is no reason to avoid vaccination."

More information: Julie Tsu-Yu Wu et al, Association of COVID-19 Vaccination With SARS-CoV-2 Infection in Patients With Cancer, *JAMA Oncology* (2021). [DOI: 10.1001/jamaoncol.2021.5771](https://doi.org/10.1001/jamaoncol.2021.5771)

Provided by Stanford University Medical Center

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