# COVID-19 Vaccine Response

COVID-19 vaccines are safe for people with cancer.

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First, the good news: COVID-19 vaccines are safe for people with cancer. And most patients with solid tumors will have a good antibody response. But those with blood cancers may not fare as well.

Researchers in New York City measured antibodies against SARS-CoV-2 (the virus that causes COVID-19) in 200 fully vaccinated cancer patients, most of whom had received the Pfizer-BioNTech or Moderna mRNA vaccines. Among people with solid tumors, 98% developed antibodies, with levels similar to those seen in people without cancer. Two other studies saw response rates of 90% and 94% for cancer patients overall. But people with blood cancers were less likely to respond, and their antibody levels were lower.

The specific type of blood cancer matters, according to an analysis of 1,445 patients by the Leukemia & Lymphoma Society (LLS). Antibody response rates after the second mRNA vaccine dose ranged from 100% for hairy cell leukemia to just 44% for mantle cell lymphoma. People with Hodgkin lymphoma (98%), chronic myeloid leukemia (97%) and multiple myeloma (95%) had high response rates, but only 64% of those with chronic lymphocytic leukemia produced antibodies.

The type of cancer treatment is key to vaccine response. Some people with leukemia and lymphoma receive monoclonal antibodies that target the CD20 receptor on antibody-producing B cells; others use BTK inhibitors that impair B-cell function. CAR-T therapy and stem cell transplants can wipe out all types of immune cells.

Antibody levels don’t tell the whole story, however. COVID-19 vaccines also trigger memory B-cell and T-cell responses. One study found that 77% of blood cancer patients who came down with COVID-19 showed SARS-CoV-2–specific T-cell responses, and those with higher CD8 T-cell counts were more likely to survive—including those treated with anti-CD20 drugs.

It’s important for cancer patients to receive their second dose of the mRNA vaccines (there’s less research on the single-shot J&J vaccine). But three doses might be even better. Researchers are exploring whether immunocompromised people could benefit from an extra booster—an approach that has helped organ transplant recipients.

People at risk for inadequate vaccine response should take other precautions. “We encourage

blood cancer patients to take every measure to protect themselves from COVID-19 by getting vaccinated and continuing to take preventative precautions," says LLS chief medical officer Gwen Nichols, MD. And when others get vaccinated, she adds, they are not only protecting themselves but are helping to protect these patients.

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