Breakthrough' COVID death: Fully vaccinated Napa woman dies from virus

Medically vulnerable people are protected only when everyone else is vaccinated

SANTA CLARA, CA – May 11: People receiving the COVID-19 vaccine fill a locker room at Levi's Stadium in Santa Clara, Calif., on Tuesday, May 11, 2021. The 49ers are offering Bay Area teens vaccines and a tour of the stadium among other goodies in a clinic at the stadium. (Dylan Bouscher/Bay Area News Group)

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A Napa woman has died of COVID-19 despite being fully inoculated, offering a sharp reminder that vaccinated people are not invincible, especially if they are medically vulnerable and the virus is still circulating widely.

"No vaccine is 100% effective, but this does not diminish the urgency and importance of getting vaccinated, especially as more variant strains emerge," said Napa County Public Health Officer Dr. Karen Relucio. "Vaccines provide exceptional protection against death and illness from the virus and all residents should continue to get vaccinated to protect themselves and others."

The woman, who was not identified, died Wednesday after a prolonged hospitalization. She had underlying medical conditions and was over the age of 65.

Out of more than 17 million fully vaccinated Californians, there have been 5,305 post-vaccination COVID-19 cases identified as of May 26 – a "breakthrough" rate of 0.03%, according to the state Department of Public Health.

Of these, at least 373 people were hospitalized and least 40 have died. It is not known if the primary cause of hospitalization or death was COVID-19 or if there were other causes, CDPH said.

There is little data about vaccines' effectiveness in people with underlying health problems, especially immune impairment, because they weren't included in the vaccines' initial trials.

But there is growing evidence that people who are immunocompromised may not mount a strong response to the vaccine.

That underscores the importance of widespread vaccination, health experts say. Vulnerable people are insulated only when everyone else is vaccinated, so the virus can't find enough people to infect and stops its deadly spread.

Dr. Brian Schwartz, professor of medicine in the Division of Infectious Diseases at UCSF Health, said it's particularly important to vaccinate friends and family members of people with compromised immune systems.

"You want to build a wall of immunity at home… That's going to significantly reduce the chance of getting infected," he said.

People with weakened immune systems should also wear masks and keep distance between themselves and unvaccinated people, he said.

In March, a fully vaccinated Chicago man died of COVID-19 after dining out with friends, one of whom tested positive for the virus in the days following the meal. The man who died had been diagnosed with chronic lymphocytic leukemia in 2019.

People can be immunocompromised for varying reasons, Schwartz said.

"It's a heterogeneous group. There's lots of different medications that affect different pathways of the immune system and therefore you're going to expect to see different responses to vaccines," he said..

They may be on medicines to suppress their immune system if they suffer from an autoimmune disease like rheumatoid arthritis, multiple sclerosis, lupus or Inflammatory bowel disease, such as ulcerative colitis.

Some medicines — such as rituximab, methotrexate and prednisone — deplete the B cells that the body needs to make antibodies, according to Dr. Lianne Gensler, professor of medicine in the Division of Rheumatology at the San Francisco Veterans Administration.

When vaccinated, their bodies produce antibodies – but not enough of them. In one study, there was a three-fold reduction in antibody levels in vaccinated people with autoimmune disease, as compared to healthy people. Steroids produced a ten-fold drop.

Chemotherapy for cancer treatment also dials down the immune system. Some blood cancers can also put people at risk. While people with breast and gastrointestinal cancer had a 95% response to the vaccine, those with chronic lymphocytic leukemia only had a 23% response.

People who have received organ and bone marrow transplants and are on anti-rejection medications, which reduce their natural defenses, are vulnerable. One study found a modest 38% to 59% antibody response to vaccines in people who had received an organ transplant.

Medical tests – specifically, a test which measures the “anti-spike IgG antibody” – can reveal the strength of an immune response. But it is not yet known how many antibodies are necessary to be protective. And these tests don’t measure a second arm of the immune system, involving T cells.

Even partial immunity can help, though. For people who are vaccinated but still get sick, there is evidence that their risk of severe illness and death is less than in those with similar risk factors who are not vaccinated, according to the U.S. Centers for Disease Control and Prevention.

The CDC is working with state and local health departments to investigate these COVID-19 vaccine breakthrough cases. The goal is to identify any unusual patterns, such as trends in underlying health conditions, age, sex, the vaccine used or which variant of the virus made these people sick.

Scientists are seeking ways to boost the immune response in these vulnerable patients. They are researching whether they need higher-dose vaccines. Or maybe they need a later “booster.” Perhaps they may get better protection if their immune-suppressing treatment is suspended during vaccination.

“This is an area that we need to continue to learn more about,” said Schwartz. “Right now, we just don’t have enough information to make really good judgments.”