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COVID-19 Vaccines in People with Cancer

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The [COVID-19 pandemic](#)¹, caused by the SARS-CoV-2 virus, continues to have a serious impact on many people, including cancer patients, their families, and caregivers. (To learn more about COVID-19 and how it might affect cancer patients and caregivers, see [Common Questions About the COVID-19 Outbreak](#)².)

Vaccines (also called immunizations or vaccinations) are used to help a person's immune system recognize and protect the body against certain infections. Vaccines are now available to help protect against COVID-19. Here we'll discuss some of the questions people with cancer (or with a history of cancer) might have about the COVID-19 vaccines.

Many expert medical groups recommend that most patients with cancer or a history of cancer should get a COVID-19 vaccine. Since the situation for every person is different, it is best to discuss the risks and benefits of getting the COVID-19 vaccine with your cancer doctor, who can advise you.

Is it safe for cancer patients to get any type of vaccine?

People with cancer (or with a history of cancer) can get some vaccines, but this depends on many factors, such as the type of vaccine, the type of cancer a person has (had), if they are still being treated for cancer, and if their immune system is working properly. Because of this, **it's best to talk with your doctor before getting any type of vaccine.** To learn more, see [Vaccinations and Flu Shots for People with Cancer](#)³.

Which COVID-19 vaccines are available?

Three COVID-19 vaccines have received emergency use authorization (EUA) from the US Food and Drug Administration (FDA):

- The [Pfizer-BioNTech vaccine is authorized](#)⁴ for people 16 years of age or older. It is given in 2 doses, 3 weeks apart.
- The [Moderna vaccine is authorized](#)⁵ for people 18 years of age or older. It is given in 2 doses, 4 weeks apart.
- The [Johnson & Johnson \(Janssen\) vaccine is authorized](#)⁶ for people 18 years of age and older. It is given as a single injection.

The Pfizer-BioNTech and Moderna vaccines contain messenger RNA (mRNA), which is a type of genetic material. After a person receives the vaccine, the mRNA enters cells in the body and tells them to make copies of the COVID-19 virus's "spike" protein (the protein that normally helps the virus infect human cells). This doesn't cause disease, but it does help teach the immune system to act against the virus if the body is exposed to it in the future.

The Johnson & Johnson (Janssen) vaccine contains an adenovirus (a type of virus that is different from the coronavirus that causes COVID-19), which has been changed in the lab so that it contains the gene (piece of DNA) for the COVID-19 virus's spike protein. Once the adenovirus enters cells in the body, this gene tells the cells to make copies of the spike protein. This triggers the immune system to recognize and attack the COVID-19 virus if the body is exposed to it in the future. The adenovirus in this vaccine is not a live virus because it has been changed so that it can no longer reproduce in the body (nor can it cause disease).

All three of these vaccines have been found to significantly lower the risk of being infected with COVID-19. They have also been shown to be very effective at lowering the risk of having severe disease, being hospitalized, or dying from COVID-19 if you are infected.

Some vaccines for other diseases contain changed versions of the live viruses that cause the diseases. These live viruses don't cause problems in people with normal immune systems. But they might not be safe for people with weakened immune systems, so live virus vaccines typically are not recommended for cancer patients. However, the **COVID-19 vaccines available in the US do not contain these types of live viruses.**

For more on these vaccines, see "Should people with cancer get a specific COVID vaccine?"

What is an emergency use authorization (EUA)?

In an EUA, the FDA allows the use of a vaccine or drug during a time of emergency, such as the current COVID-19 pandemic, when the available evidence shows the potential benefits outweigh the potential risks. An EUA is not the same as a full FDA approval, which requires a more thorough review of safety and effectiveness.

Drugs and vaccines that have been given an EUA continue to be studied in clinical trials. For example, it is not yet clear if someone who gets one of the vaccines can still spread the virus to others. This is still being studied, as are any possible long-term effects of the vaccines. Researchers are also still trying to determine how long the vaccines will provide protection against the virus.

What are the side effects of the vaccines?

Common side effects that have been reported after getting the vaccines include:

- **Pain, redness, or swelling at the injection site**
- **Feeling tired**
- **Headache**
- **Fever**
- **Chills**
- **Muscle and joint pain**
- **Nausea**

For the vaccines that require two shots, the side effects might be a little stronger after the second shot compared to what you might have had after the first injection. In general, the side effects tend to go away within a few days.

Swollen/tender lymph nodes

Some people might have swelling or tenderness of the lymph nodes under the arm in which they got the injection. This is often a normal response by the body's immune system, which is getting ready to fight a future COVID-19 infection.

A swollen lymph node under the arm might cause concern, since this can also be a sign of breast cancer (as well as some other cancers - see below). The time it takes for the lymph nodes to shrink back down after the vaccine may be a few days to a few weeks, although this is still being studied. If you notice swollen or tender lymph nodes that do not go away after a few weeks (or if they continue to get bigger), contact your doctor to discuss the next steps.

Screening mammograms: See “Could the vaccine cause issues if I’m getting a mammogram?” for more information about COVID-19 vaccines and mammograms.

For those who have breast cancer or a history of breast cancer: See “What if I have breast cancer or a history of breast cancer?” for more information about which arm to consider getting the injection in.

For those with any type of cancer or a history of cancer: Many types of cancer can spread to nearby lymph nodes (and some types of cancer can start in the lymph nodes). This can cause the nodes to become enlarged. Because the COVID vaccines can also cause lymph nodes to become enlarged, it's important to talk to your health care team if you are scheduled to get an imaging test (such as an MRI or CT scan) in the weeks after getting a COVID vaccine. In some cases, your doctors might advise that you delay the imaging test if possible, so that any swollen lymph nodes that result from the vaccine aren't confused for cancer. If you do have a scan done soon after getting the vaccine, it's important to make sure that your health care team is aware you got the vaccine, so they can take this into account when looking at the scans.

Serious and long-term side effects of COVID-19 vaccines

Only a few possible serious safety concerns have been reported for the vaccines so far.

Allergic reactions to the vaccine

In very rare cases, people have had serious allergic reactions after getting one of the vaccines. This seems to be more likely in people who have had serious allergic reactions before.

Blood clots

Very rarely, people who have received the Johnson & Johnson (Janssen) vaccine have developed serious blood clots in the brain, abdomen (belly), legs, or other parts of the body, along with low blood platelet counts. (Platelets are cells that normally help in blood clotting.)

Most of these events have happened in women between the ages of 18 and 59, and from 6 to 15 days after getting the vaccine.

The FDA and the US Centers for Disease Control and Prevention (CDC) have reviewed the data on these incidents and have determined that the vaccine's known and potential benefits outweigh its known and potential risks in people 18 years of age and older.

People getting the vaccine (and their caregivers) should review the Janssen [Fact Sheet for Recipients and Caregivers](#)⁷ to learn more about the possible benefits and risks of the vaccine.

The FDA and CDC recommend that if you have received the Johnson & Johnson vaccine within the past three weeks, you should contact your health care provider right away if you have possible symptoms of a blood clot, such as a severe or constant headache, blurred vision, seizures, abdominal (belly) pain, leg pain or swelling, chest pain, or shortness of breath. You should also contact your health care provider if you have symptoms that might be from a low platelet count, such as new or easy bruising, or tiny purple or red spots on the skin that might look like a rash.

For the latest information, visit the websites of the [FDA](#)⁸ and [CDC](#)⁹.

All of these COVID-19 vaccines are still fairly new, so possible long-term side effects are still being studied, and it's possible that the guidance about the different vaccines might change. If you have concerns about getting the COVID-19 vaccine, it's important to talk with your doctor.

Are the COVID-19 vaccines available for people with cancer?

The US Centers for Disease Control and Prevention (CDC) recommends that anyone 16 years of age and older be offered the vaccines, so this includes people with cancer.

The supply of vaccines in the United States might vary in different parts of the country based on the distribution of the vaccine and the number of people who want to get the vaccine.

Should cancer patients and survivors get the vaccine?

Many expert medical groups recommend that most people with cancer or a history of cancer get the COVID-19 vaccine once it's available to them.

The main concern about getting the vaccine is not whether it's safe for people with cancer, but about how effective it will be, especially in people with weakened immune systems. Some cancer treatments like [chemotherapy \(chemo\)](#)¹⁰, [radiation](#)¹¹, [stem cell or bone marrow transplant](#)¹², or [immunotherapy](#)¹³ can affect the immune system, which might make the vaccine less effective. People with certain types of cancers, like [leukemias](#)¹⁴ or [lymphomas](#)¹⁵, can also have weakened immune systems which might make the vaccine less effective.

The initial studies testing the COVID-19 vaccines did not include people getting treatment with drugs that suppress the immune system, like chemo, or people who have weakened immune systems for other reasons. This is because the studies needed to see first if the vaccines work in people with healthy immune systems. Because of this, it's not yet clear how effective the vaccines might be in these groups of people.

Although we don't have specific information yet on how effective the vaccines might be in people being treated for cancer, it's possible that the vaccines might not be as effective in people with [weakened immune systems](#)¹⁶ as compared to people with healthy immune systems. Despite this, experts still recommend that most cancer patients get the vaccine because those with a fragile immune system are at risk for severe COVID-19 disease, so getting even some protection from the vaccine is better than not having any protection.

Since the situation for every person is different, it is best to discuss the risks and benefits of getting one of the COVID-19 vaccines with your cancer doctor. They can advise you and tell you when you should receive it.

It's also important to know that once you are fully vaccinated (at least two weeks past your last dose of vaccine), the CDC has guidance on things you can do (especially outdoors) without having to take as many precautions as people who aren't fully vaccinated, as well as what types of precautions you should still be taking. This guidance is being updated regularly, so check the [CDC website](#)¹⁷ for details. **The CDC guidance may not apply if you have a weakened immune system, so it's important**

to talk with your health care provider about which precautions you still need to take.

Should people with cancer get a specific COVID-19 vaccine?

As mentioned in “Which COVID-19 vaccines are available?”, the Pfizer-BioNTech and Moderna vaccines are mRNA vaccines, while the Johnson & Johnson (Janssen) vaccine is an adenovirus vaccine. The main difference between them at this time is that the mRNA vaccines are given as two shots (over 3 to 4 weeks), while the adenovirus vaccine is given as a single shot.

These vaccines have been studied in different places and at different times, and there haven't been any studies directly comparing the different vaccines. Because of this, it's not clear if any one of the vaccines is safer or more effective than any of the others. It's also not yet clear if any of the vaccines will be more (or less) effective against some of the new variants of COVID-19 that have appeared in recent months. This is now being studied, as is the possibility of needing booster shots in the future to help protect against these variants.

All three of the vaccines now available have been shown to be effective at both lowering the risk of getting COVID-19, as well as the risk of getting severe disease if you are infected.

At this time, no major medical organizations have recommended getting one type of COVID vaccine over another, either for cancer patients (or survivors) or for other people. Many health experts believe that getting the vaccine once it becomes available to you, whichever one it is, is most important, rather than waiting to get a specific vaccine.

As new information about the different COVID-19 vaccines becomes available, it's possible that the guidance about the different vaccines might change. For this reason, it's important to talk with your cancer doctor about getting the vaccine.

Do I still need to take precautions if I get the COVID-19 vaccine?

The COVID-19 vaccines are still being studied, as there are things we don't yet know about them. For example, researchers are still trying to determine how long the COVID-19 vaccines will help protect against the virus. And while the vaccines can clearly lower the risk of getting serious disease from COVID, it's not yet clear how well they can prevent the spread of the virus to others.

If you are fully vaccinated (at least two weeks past your last dose of vaccine), the CDC has guidance on things you can do (especially outdoors) without having to take as many precautions as people who aren't fully vaccinated, as well as what types of precautions you should still be taking. This guidance is being updated regularly, so check the [CDC website](#)¹⁸ for details. **The CDC guidance may not apply if you have a weakened immune system, so it's important to talk with your health care provider about which precautions you still need to take.**

What if I have breast cancer or a history of breast cancer?

Some people who get a COVID-19 vaccine might have swollen lymph nodes under the arm in which the injection was given (see "What are the side effects of the vaccines?" above). Because a swollen lymph node under the arm can also be a sign of breast cancer spread, most doctors recommend that people with breast cancer or a history of breast cancer get the injection in the arm on the opposite side of your breast cancer. For example, if your breast cancer/breast surgery was in the left breast, it is probably best to get the injection in the right arm. If you have had surgery on both breasts, it's best to talk with your doctor about the best place on your body to get the injection.

Swollen lymph nodes after a vaccine injection might also have an effect on your mammogram results. (See next question.)

Could the vaccine cause issues if I'm getting a mammogram?

Getting a COVID-19 vaccine might result in swollen lymph nodes under the arm in which the injection was given. (See "What are the side effects of the vaccines?" above.)

Swollen lymph nodes under the arm might show up on a mammogram done to screen for breast cancer, which could cause concern and might lead to the need for further tests.

If you're scheduled for a mammogram soon after you get a COVID-19 vaccine, it's important to tell your doctor when and in which arm you received the injection. Based on your situation, they can discuss with you if you should change your mammogram appointment. **Do not delay your mammogram without speaking to your doctor first.**

Is it OK for cancer caregivers to get the vaccine?

Some vaccines for other diseases contain changed versions of the live viruses that

cause the diseases. These types of live virus vaccines typically are not recommended for cancer caregivers because they might have unwanted effects on cancer patients. However, the available COVID-19 vaccines do not contain these types of live viruses, so getting one of these vaccines does not put you at risk for passing COVID-19 on to the person you're caring for.

It's important to know that if you do get a COVID-19 vaccine and are later exposed to the virus, it's not yet clear if the vaccine will prevent you from infecting someone else (even if you don't get sick).

If you are fully vaccinated (at least two weeks past your last dose of vaccine), the CDC has guidance on things you can do (especially outdoors) without having to take as many precautions as people who aren't fully vaccinated, as well as what types of precautions you should still be taking. This guidance is being updated regularly, so check the [CDC website](#)¹⁹ for details. **The CDC guidance may not apply if you have (or are taking care of someone who has) a weakened immune system, so it's important to talk a health care provider about which precautions you still need to take.**

People getting the vaccine might not feel well for a few days after each shot, so it might make sense to have someone else available to help with caregiving during this time.

Where can I get more information about COVID-19 vaccines?

The CDC and FDA have more information about COVID-19 vaccines, including the different types of vaccines and the known possible risks and benefits of each one.

- [US Centers for Disease Control and Prevention \(CDC\)](#)²⁰
- [US Food and Drug Administration \(FDA\)](#)²¹

For more information about COVID-19 vaccine availability in your area, contact your state or local health department. (The CDC offers [links to state health departments](#)²².)

Hyperlinks

1. www.cancer.org/about-us/what-we-do/coronavirus-covid-19-and-cancer.html
2. www.cancer.org/latest-news/common-questions-about-the-new-coronavirus-outbreak.html
3. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/low-blood-counts/infections/vaccination-during-cancer-treatment.html
4. <http://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease->

- [2019-covid-19/pfizer-biontech-covid-19-vaccine](#)
5. <http://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/moderna-covid-19-vaccine>
 6. <http://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/janssen-covid-19-vaccine>
 7. www.fda.gov/media/146305/download
 8. www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/covid-19-vaccines
 9. www.cdc.gov/coronavirus/2019-ncov/vaccines/index.html
 10. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/chemotherapy.html
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 21. www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/covid-19-vaccines
 22. <http://www.cdc.gov/coronavirus/2019-ncov/vaccines/index.html>

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Written by

The American Cancer Society medical and editorial content team
(www.cancer.org/cancer/acs-medical-content-and-news-staff.html)

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