LEUKEMIA & LYMPHOMA SOCIETY®

**HEALTHCARE PROFESSIONALS**

**No. 6 in a series** providing the latest information

# COVID-19 Prevention and Treatment for Blood Cancer Patients

The Leukemia & Lymphoma Society (LLS) hears from blood cancer patients and caregivers each day about the profound effects of the COVID-19 pandemic on their cancer care and daily lives, including questions about how well COVID-19 vaccines, monoclonal antibodies and antivirals work for them.

This fact sheet is designed to give healthcare professionals the most up-to-date information about recommendations for reducing COVID-19 risks in blood cancer patients.

## Bivalent booster, additional vaccine doses important for hematologic malignancy patients

Vaccine-eligible immunocompromised individuals receiving an mRNA vaccine should receive an extra dose as part of their primary vaccine series.[1] The only exception is in children aged 6 months through 4 years receiving the Pfizer-BioNTech vaccine, who need the same three-dose series regardless of their immune status. Data from the LLS National Patient Immunization Registry shows that most blood cancer patients benefit from the additional primary dose either through new seroconversion or a boost in existing antibody levels.[2]

Novavax vaccine, authorized for people 12 and older, is given as a two-dose primary series regardless of the patient's immune status.[1] The FDA has limited use of the Johnson & Johnson COVID-19 vaccine due to an increased risk of thrombosis and thrombocytopenia syndrome,[3] so this vaccine is not reflected in our dosing chart below.

As of December 9, 2022, with the expansion to include children aged 5 years and younger, updated (bivalent) COVID-19 vaccines are now recommended for everyone 6 months and older, regardless of their immune status.[1,4,5] Bivalent vaccines add Omicron-specific protection along with protection against the original COVID-19 strain.

Bivalent vaccines are given as boosters at least two months after completion of the primary vaccine series to everyone 5 years and older, and to children as young as 6 months receiving the Moderna vaccine.[1] Children 6 months through 4 years who receive the Pfizer-BioNTech vaccine should receive the bivalent vaccine as the third dose in their primary vaccine series.

### Vaccine dosing in moderately to severely immunocompromised patients only

| | Pfizer-BioNTech | | | Moderna | | Novavax |
|---|---|---|---|---|---|---|
| | 6 months – 4 years | 5–11 years | ≥ 12 years | 6 months – 11 years | ≥ 12 years | ≥ 12 years |
| **No. of Primary Doses** | 3* | 3 | 3 | 3 | 3 | 2 |
| **No. of Booster Doses** | None | 1 | 1 | 1 | 1 | 1 |
| **Dosing Interval** | | | | | | |
| **Dose 1 to Dose 2** | ≥ 3 weeks | ≥ 3 weeks | ≥ 3 weeks | ≥ 4 weeks | ≥ 4 weeks | ≥ 3 weeks |
| **Dose 2 to Dose 3** | ≥ 8 weeks | ≥ 4 weeks | ≥ 4 weeks | ≥ 4 weeks | ≥ 4 weeks | N/A |
| **Booster Dose** | None | ≥8 weeks (2 months) | ≥8 weeks (2 months) | ≥8 weeks (2 months) | ≥8 weeks (2 months) | ≥8 weeks (2 months) |

**Important Notes:** For information on doses and timing of the J&J vaccine, please visit https://www.cdc.gov/coronavirus/2019-ncov/vaccines/different-vaccines/janssen.html. Please refer to the CDC interim COVID-19 immunization schedule for full details on vaccine dosing.[1]

*Dose 3 is bivalent vaccine.

## Which patients are considered "moderately to severely immunocompromised?"

The National Institutes of Health (NIH) COVID-19 expert panel[4] considers the following hematologic malignancy patients to be moderately to severely immunocompromised:

- Anyone receiving active treatment
- Anyone with a hematologic malignancy (e.g., chronic lymphocytic leukemia [CLL], non-Hodgkin lymphoma [NHL], plasma cell dyscrasias) known to have a poor response to COVID-19 vaccines or an increased risk of severe COVID-19, regardless of treatment status.

In addition, LLS considers patients who have had CD19-targeted CAR T-therapy to be immunosuppressed for as long as the CAR T is working, regardless of the time since infusion.

*LLS strongly encourages all blood cancer patients, regardless of where they are in their treatment, remission or recovery to talk with their oncology treatment team about the status of their immune system and whether an additional primary vaccine dose and the prophylactic monoclonal antibody Evusheld™ is right for them.*

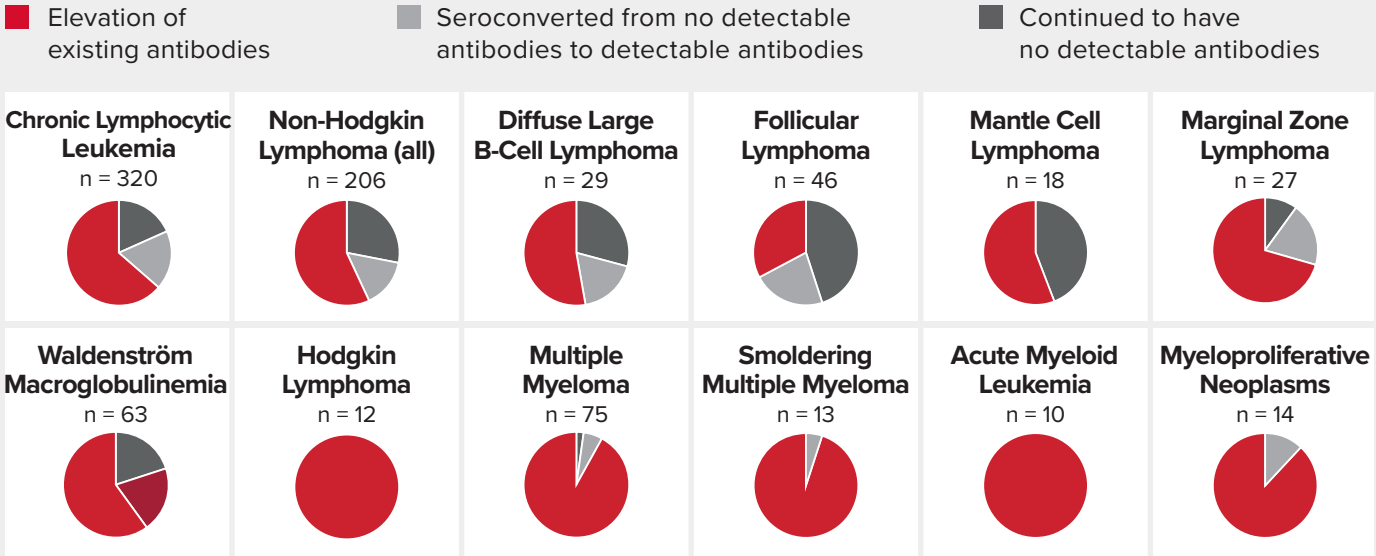
## LLS data: COVID-19 vaccine response varies by malignancy and treatment type

LLS has reported anti-spike antibody response to COVID-19 vaccines from the largest study of blood cancer patients to date. Our first published study in over 1,400 hematologic patients[7] reported that 25% were seronegative after two mRNA vaccine doses. Results varied by type of malignancy and treatment. Patients with B-cell malignancies, including CLL, tended to do worse.

Additional data presented at the American Society of Hematology meeting in December 2021 and published in Blood Cancer Discovery[2] showed most hematology patients benefit from a third COVID-19 vaccine dose. (Figure) A recent publication also reported on the correlation between antibody and T cell response to COVID-19 vaccination in blood cancer patients with B-cell malignancies (predominantly CLL and NHL), and at the 2022 ASH meeting we reported a 10% breakthrough infection rate among blood cancer patients, mainly among people with B-cell lymphomas.[2]

The percentage of patients who displayed a T cell response was higher among patients with detectable antibodies (58%) than with undetectable antibodies (45%). Patient age and receipt of BTK inhibitors, anti-CD20 antibodies or venetoclax did not affect T cell positivity. It is important to encourage hematology patients to take additional precautions

### Antibody response* to **THIRD** COVID-19 vaccine, by blood cancer diagnosis




**Source:** The LLS National Patient Registry. Data collected from 699 patients who had a third dose of Moderna or Pfizer mRNA vaccine between June and September 2021.

*Response measures anti-spike antibody levels. Most patients received the same vaccine brand for all three doses. There were not enough "mix and match" third doses to draw conclusions about whether mixing doses has an effect on immune response.

Data reported at American Society of Hematology annual meeting, December 13, 2021.

to avoid infection, such as masking and distancing, and to ensure they have access to Evusheld, as well as monoclonal antibody and antiviral treatments that can reduce their risk of progressing to severe COVID-19.

## COVID-19 prevention and treatment guidelines

The NIH convened an expert panel to develop **COVID-19 Treatment Guidelines**.[7] The guidelines are updated as the pandemic evolves. The guidelines provide an algorithm for pre-exposure prophylaxis, post-exposure-prophylaxis, and treatment of COVID-19 in both hospitalized and non-hospitalized patients. Frontline medical professionals can stay informed of recent changes by monitoring the NIH **"What's New"** page often.[9]

### Snapshot: COVID-19 Pre-exposure prophylaxis

Tixagevimab co-packaged with cilgavimab (Evusheld) is the only monoclonal antibody authorized for pre-exposure prophylaxis of COVID-19 disease. However, certain Omicron subvariants may have markedly reduced susceptibility to Evusheld and patients receiving it should be counseled to continue to take additional precautions to avoid infections.

- For use in adults and children ≥12 years and weighing ≥40 kg who are moderately to severely immunocompromised due to a medical condition or immune-suppressing treatment, or who cannot be vaccinated with any COVID-19 vaccine according to the approved schedule.
- On February 24, 2022, the FDA doubled the recommended dose of Evusheld to 300 mg of each agent based on decreased neutralization activity against Omicron subvariants BA.1 and BA.1.1. Patients who received the earlier recommended dose of 150 mg of each agent should receive another dose as soon as possible.
- On June 29, 2022, Evusheld was authorized for repeated dosing every 6 months for patients who need ongoing protection.

### Snapshot: COVID-19 treatment in the outpatient setting

Three **antivirals**, nirmatrelvir and ritonavir tablets (Paxlovid™), molnupiravir capsules, and remdesivir (Veklury®) IV infusion or injections are authorized to treat COVID-19 in outpatients. (Remdesivir is also approved for use in hospitalized patients.)

- Treatment of mild-to-moderate COVID-19 confirmed by a positive COVID-19 test in non-hospitalized patients who are at high risk of progression to severe infection.
  - Molnupiravir is authorized for use in adults ≥18 years.
  - Nirmatrelvir and ritonavir is authorized for use in adults ≥18 years and children ≥12 years and weighing ≥40 kg.
  - Remdesivir is authorized for use in adults ≥18 years and pediatric patients at least 28 days of age and weighing at least 3 kg.
- Treatment should begin as soon as possible after COVID-19 diagnosis and within 5 days of symptom onset (7 days for remdesivir).
- Oral treatments (molnupiravir, nirmatrelvir and ritonavir) should be taken for no more than 5 consecutive days; remdesivir is a 3-day course of treatment.
- **Important note:** Nirmatrelvir and ritonavir may impair the efficacy and safety of certain cancer medications.

At present, there are no monoclonal antibodies authorized or recommended to treat mild-to-moderate COVID-19 in the outpatient setting.

### Snapshot: high-titer COVID-19 convalescent plasma

The FDA has issued an emergency use authorization for the use of high-titer COVID-19 convalescent plasma (CCP) in outpatients who are immunocompromised or receiving immunosuppressive treatment. The NIH panel found insufficient evidence to recommend either for or against its use in this population. Clinicians who administer CCP to their patients should, whenever possible, use high-titer CCP from a vaccinated donor who recently recovered from COVID.[6]

## Additional Resources

LLS COVID-19 Response Program: Resources for Patients and Caregivers
**https://www.LLS.org/covid-19-resources**

Centers for Disease Control and Prevention. Interim Clinical Guidance for Management of Patients with Confirmed Coronavirus Disease (COVID-19).
**https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html**

Food and Drug Administration. Coronavirus Disease 2019 (COVID-19)
**https://www.fda.gov/emergency-preparedness-and-response/counterterrorism-and-emerging-threats/coronavirus-disease-2019-covid-19**

National Institutes of Health. Coronavirus Disease 2019 (COVID-19) Treatment Guidelines.
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9. NIH. What's New in the Guidelines. At: https://www.covid19treatmentguidelines.nih.gov/about-the-guidelines/whats-new/.
10. LLS. LLS COVID-19 Response Program: resources for patients and caregivers. At: https://www.lls.org/covid-19-resources.