

# 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.

## Hematologic malignancy patients require one extra COVID-19 vaccine dose in the primary series and earlier boosters

CDC has expressed a “clinical preference” for mRNA COVID-19 vaccines (Moderna, Pfizer-BioNTech) over the Johnson & Johnson COVID-19 vaccine.<sup>1</sup> Immunocompromised patients who begin their vaccination series with an mRNA vaccine can receive up to 5 doses (3 primary, plus 2 boosters). Patients who begin their vaccination series with the J&J vaccine can receive up to 4 doses (2 primary—1 J&J and 1 mRNA, plus 2 booster doses).<sup>2</sup>

## Which patients are considered “moderately to severely immunocompromised?”

LLS explains to patients it comes into contact with that because the immune system is very complex, there is no simple answer to who is moderately to severely immunocompromised. This is why CDC and other policy making bodies provide guidance on the issue and encourage discussions between patients and their own healthcare providers.

*LLS strongly encourages all blood cancer patients, regardless of where they are in their treatment, remission or recovery to talk with their blood cancer treatment team about the status of their immune system and whether Evusheld™ and an additional COVID-19 booster dose are right for them.*

LLS agrees with the approach taken by Memorial Sloan Kettering Cancer Center (MSKCC)<sup>3</sup>, which

considers all blood cancer patients to be moderately to severely immunocompromised. However, LLS makes one addition: patients who have had CD19-targeted CAR T-therapy should consider themselves immunosuppressed for as long as the CAR T is working, even if it has been more than two years since their infusion.

## Vaccine dosing in moderately to severely immunocompromised patients only

	Pfizer-BioNTech		Moderna	J&J
<b>Age Group (years)</b>	5-11	≥ 12	≥ 18	≥ 18
<b>No. of Primary Doses</b>	3	3	3	1 J&J, followed by 1 mRNA
<b>No. of Booster Doses</b>	NONE	1-2	1-2	1-2
<b>Dosing Interval</b>				
<b>Dose 1 to Dose 2</b>	3 weeks	3 weeks	4 weeks	4 weeks
<b>Dose 2 to Dose 3</b>	≥ 4 weeks	≥ 4 weeks	≥ 4 weeks	≥ 2 months
<b>Dose 3 to Dose 4</b>	N/A	≥ 3 months	≥ 3 months	≥ 4 months
<b>Dose 4 to Dose 5</b>	N/A	≥ 4 months	≥ 4 months	N/A

**Important Notes:** For immunocompromised patients, Moderna doses 1-3 are full strength. Only the booster doses (doses 4 and 5) are half strength. An mRNA vaccine (Pfizer or Moderna) is **preferred** for the first booster. The second booster **must be** an mRNA vaccine. Highlighted boxes indicate booster doses.

## 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<sup>4</sup> 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.

LLS presented additional data at the American Society of Hematology annual meeting in December 2021 showing that most hematology patients benefit from a third COVID-19 vaccine dose. (Figure) However, a large proportion of hematology patients will remain at risk even with the additional dose. It is important to encourage hematology patients to take additional precautions to avoid infection, such as masking and distancing, and to ensure they have access to the prophylactic monoclonal antibody (Evusheld), as well as monoclonal antibody and antiviral treatments that can reduce their risk of progressing to severe COVID-19.

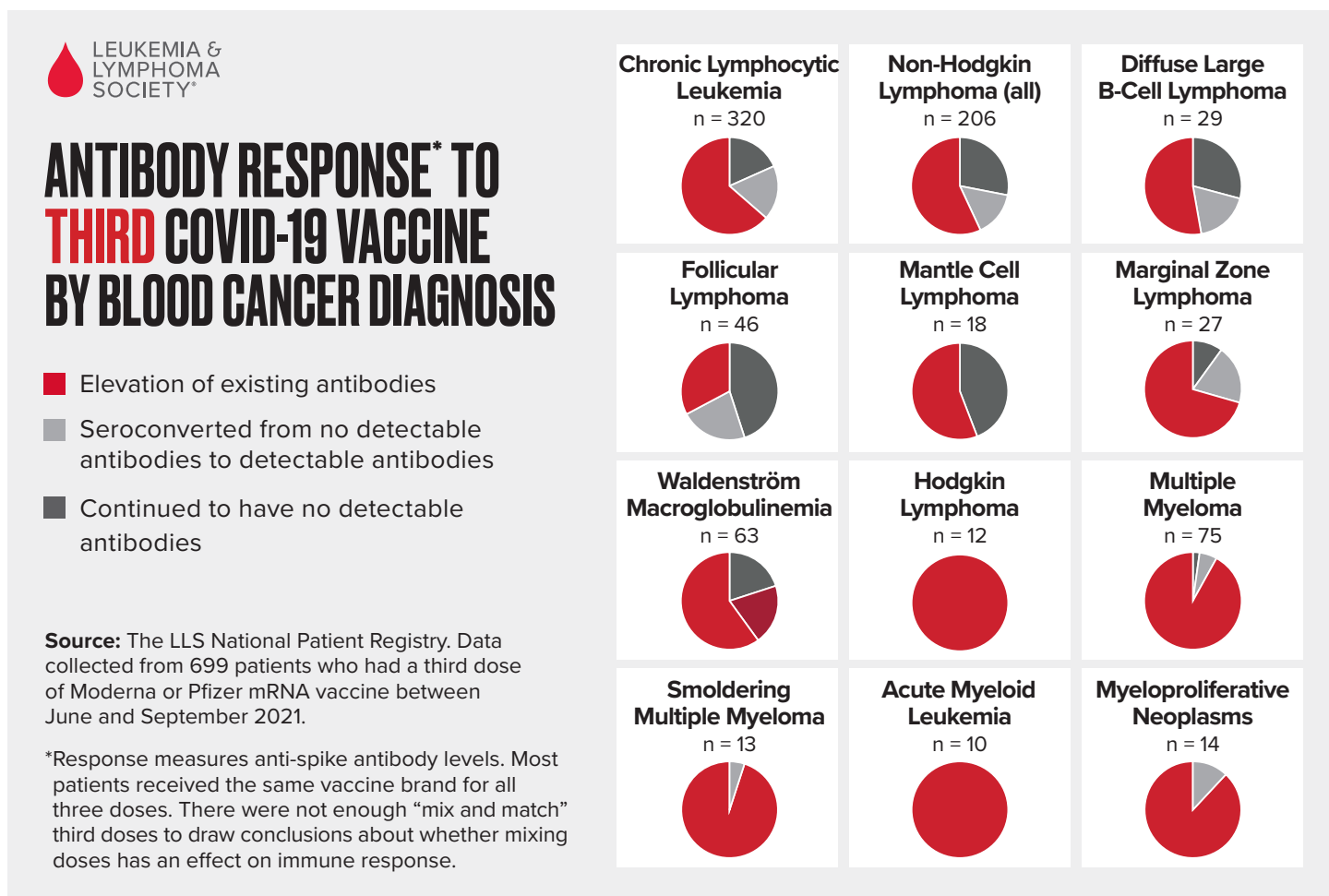
## COVID-19 prevention and treatment guidelines

The National Institutes of Health convened an expert panel to develop [COVID-19 Treatment Guidelines](#).<sup>5</sup> 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.

LLS has developed tables for consumers with important information about [monoclonal antibodies](#) and [antiviral medications](#) available for prophylaxis and treatment in the outpatient setting.<sup>6</sup> LLS makes every effort to rapidly update these tables as recommendations evolve, but suggests that frontline medical professionals stay informed of recent changes by monitoring the NIH [“What’s New”](#) page often.<sup>7</sup>

### 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.



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

- o For use in adults and children  $\geq 12$  years and weighing  $\geq 40$  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.
- o 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.
- o There are no recommendations for repeat dosing at this time. If Evusheld retains activity against BA.2 and future variants, FDA is likely to recommend repeat dosing. The latest information will be available [here](#).<sup>8</sup>

### Snapshot: COVID-19 Treatment in the Outpatient Setting

One **monoclonal antibody**, bebtelovimab, is authorized to treat COVID-19 in outpatients. Authorizations for other antibody treatments were withdrawn because they are not active against currently circulating variants.

- o Treatment of mild-to-moderate COVID-19 in adults and children  $\geq 12$  years and weighing  $\geq 40$  kg who have tested positive for COVID-19, are not hospitalized or using supplemental oxygen and who are at increased risk of progressing to severe COVID-19.
- o Treatment should be initiated as soon after positive COVID-19 test results as possible or within 7 days of symptom onset.

Two **antivirals**, nirmatrelvir and ritonavir tablets (Paxlovid™), and molnupiravir are authorized to treat COVID-19 in outpatients.

- o 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.
  - o Molnupiravir is authorized for use in adults  $\geq 18$  years.
  - o Nirmatrelvir and ritonavir is authorized for use in adults  $\geq 18$  years and children  $\geq 12$  years and weighing  $\geq 40$  kg.
- o Treatment should begin as soon as possible after COVID-19 diagnosis and within 5 days of symptom onset.
- o Treatment should be taken for no more than 5 consecutive days.
- o **Important note:** Nirmatrelvir and ritonavir may impair the efficacy and safety of certain cancer medications.

### 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.  
<https://www.covid19treatmentguidelines.nih.gov/>

### References

1. Centers for Disease Control and Prevention (CDC). CDC endorses ACIP's updated COVID-19 vaccine recommendations. At: <https://www.cdc.gov/media/releases/2021/s1216-covid-19-vaccines.html>. Accessed March 2, 2022.
2. CDC. Interim clinical considerations for use of COVID-19 vaccines currently approved or authorized in the United States. At: <https://www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html>. Accessed April 22, 2022.
3. Memorial Sloan Kettering Cancer Center. What to Know: Total number of COVID-19 vaccine doses needed for some people with cancer and those with weakened immune systems—including second booster dose. At: <https://www.mskcc.org/coronavirus/additional-dose-covid-19-vaccine-recommended-some-cancer-patients-weakened-immune-systems>. Accessed April 22, 2022.
4. Greenberger LM, Saltzman LA, Senefeld JW, Johnson PW, DeGennaro LJ, Nichols GL. Antibody response to SARS-CoV-2 vaccines in patients with hematologic malignancies. *Cancer Cell*. 2021 Aug 9;39(8):1031-1033.
5. NIH. COVID-19 Treatment Guidelines. At: <https://www.covid19treatmentguidelines.nih.gov/about-the-guidelines/whats-new/>.
6. LLS. LLS COVID-19 Response Program: resources for patients and caregivers. At: <https://www.lls.org/covid-19-resources>.
7. NIH. What's New in the Guidelines. At: <https://www.covid19treatmentguidelines.nih.gov/about-the-guidelines/whats-new/>.
8. HHS Office of the Assistant Secretary for Preparedness and Response. Important Evusheld Updates. At: <https://aspr.hhs.gov/COVID-19/Therapeutics/Products/Evusheld/Pages/default.aspx>.