

Non-Hodgkin Lymphoma Treatment

What is the safety of Non-Hodgkin Lymphoma treatments?

There are multiple ways to treat Non-Hodgkin Lymphoma.

Non-Hodgkin Lymphoma (NHL) is a cancer of white blood cells called lymphocytes that fight infections and diseases ([American Cancer Society \(ACS\) 2024a](#), [National Cancer Institute n.d.](#)). In the U.S., 1 in 46 males and 1 in 55 females are at risk of developing NHL ([ACS 2026a](#)). White individuals are more likely to develop NHL than African- and Asian-Americans ([ACS 2024b](#)).

Biological factors such as autoimmune diseases that weaken the immune system increase the risk of developing NHL ([ACS 2024b](#)). Certain arthritis drugs, cancer drugs, or chemicals such as herbicides and insecticides are correlated to increased rates of NHL, but there is no clear cause and effect. Litigation has alleged herbicides have caused NHL, but there is no formal study showing specific drugs or chemicals cause NHL. ([ACS 2024b](#), [Johnson v. Monsanto 2020](#), [Hardeman v. Monsanto 2021](#)).

Treatment for NHL includes chemotherapy, immunotherapy, radiation, and targeted drug therapy. There are over 90 available drugs approved to treat NHL ([Mayo Clinic 2025](#), [National Cancer Institute 2025](#)). Treatments target the bone marrow, which makes white blood cells, all the blood throughout the body,



Research Highlights

Non-Hodgkin Lymphoma (NHL) is a cancer of white blood cells, which are part of the body's immune system.

Treatments for Non-Hodgkin Lymphoma (NHL), have multiple side effects varying in severity.

Twenty percent of cancer drugs, including NHL drugs, with accelerated approvals have been withdrawn by the FDA due to safety concerns or lack of data.

or anywhere the cancer has spread ([Mayo Clinic 2025](#)).

Cancer drugs are administered as injections or pills. Chemotherapy usually includes a combination of drugs and is often combined with immunotherapy ([ACS 2024c](#)). Immunotherapy is an antibody drug treatment to help the immune system kill cancer cells ([ACS 2025a](#)). Radiation therapy targets specific parts of the body with radiation to kill the cancer cells ([ACS 2024d](#)). Targeted drug therapy is a more recently developed treatment that targets specific changes in the cancer cells to stop the cancer from growing ([ACS 2026b](#)).

NHL treatment has a wide range of side effects.

Most NHL treatments have multiple side effects such as fatigue, nausea, or damage to organs ([ACS 2024c](#), **Table 1**). Certain NHL chemotherapy drugs can damage nerves and body organs, as well as increase the risk of other cancers ([ACS 2024c](#)).

Radiation can also lead to skin redness and peeling in the irradiated area (ACS 2024d).

The NHL survival rate is about 70% five years after diagnosis, with higher survival rates when the cancer is more localized to one place in the body (ACS 2025b).

The FDA has withdrawn approval of some NHL drugs due to a lack of clinical benefits.

The Food and Drug Administration (FDA) has withdrawn some NHL treatment drugs due to negative effects or lack of data after accelerated approval. The FDA gives accelerated approval for drugs treating serious conditions and requires a post-approval trial to confirm the drugs’ benefits and convert the approval into a regular approval.

The FDA withdrew the accelerated approval of the NHL combined radiation immunotherapy drug Bexxar when the manufacturer did not complete the required post-approval confirmatory trial (FDA 2013).

The NHL targeted therapy drug Aliqopa initially received accelerated approval from the FDA, but a post-approval confirmatory trial did not show that Aliqopa improved NHL patients’ health (FDA 2024).

The FDA also withdrew its accelerated approval of the NHL targeted therapy drug Ukoniq after a clinical trial showed it potentially increased the risk of death (FDA 2022).

The drug manufacturer Ipsen announced they withdrew their NHL targeted therapy drug Tazverikafter studies showed a potential risk for developing other cancers (Ipsen 2026).

Table 1. Side effects of Non-Hodgkin Lymphoma Treatments. Each treatment is marked yes (Y) for each side effect it is associated with. C = chemotherapy, I =immunotherapy, T = targeted drug therapy, R = radiation.

Side Effects	C	I	T	R
appetite loss	Y	Y	Y	
bleeding/bruising	Y	Y	Y	
diarrhea	Y	Y		Y
fatigue	Y	Y	Y	Y
fever		Y	Y	
hair loss	Y			
infection	Y	Y		
mouth sores	Y			
nausea	Y	Y	Y	Y
nerve damage	Y	Y	Y	
organ damage	Y	Y	Y	Y
pneumonia		Y		
secondary cancer risk	Y		Y	Y
skin problems		Y	Y	Y

As of March 23, 2026, the manufacturer is working with the FDA to withdraw the drug’s accelerated approval.

Based on five-year follow-up data, about 60% of cancer drugs with FDA accelerated approvals are given regular approvals, 20% are withdrawn, and the rest have ongoing studies (Liu et al. 2024, Tibau et al. 2025).

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