



Lane
Cancer Center

Care You Can Count On

HEMATOLOGY ONCOLOGY

A GUIDE TO BLOOD CANCER TYPES & TREATMENTS



Cancer is a scary word and a terrifying prospect

Nearly every life has been touched by it in some form, with everyone seeming to have a loved one, friend, or acquaintance who has had to battle the disease, if not having gone through it themselves.

In fact, over 1.5 million new cases of cancer are diagnosed each year. Among the most common are those affecting the breasts, lungs, prostate, and colon. However, while these may be the types with which the public is most familiar, there is a separate, subgroup of cancers that account for over 10 percent of new diagnoses annually: blood cancers¹.

Estimated New Cases (%) of Leukemia, Lymphoma, and Myeloma, 2017

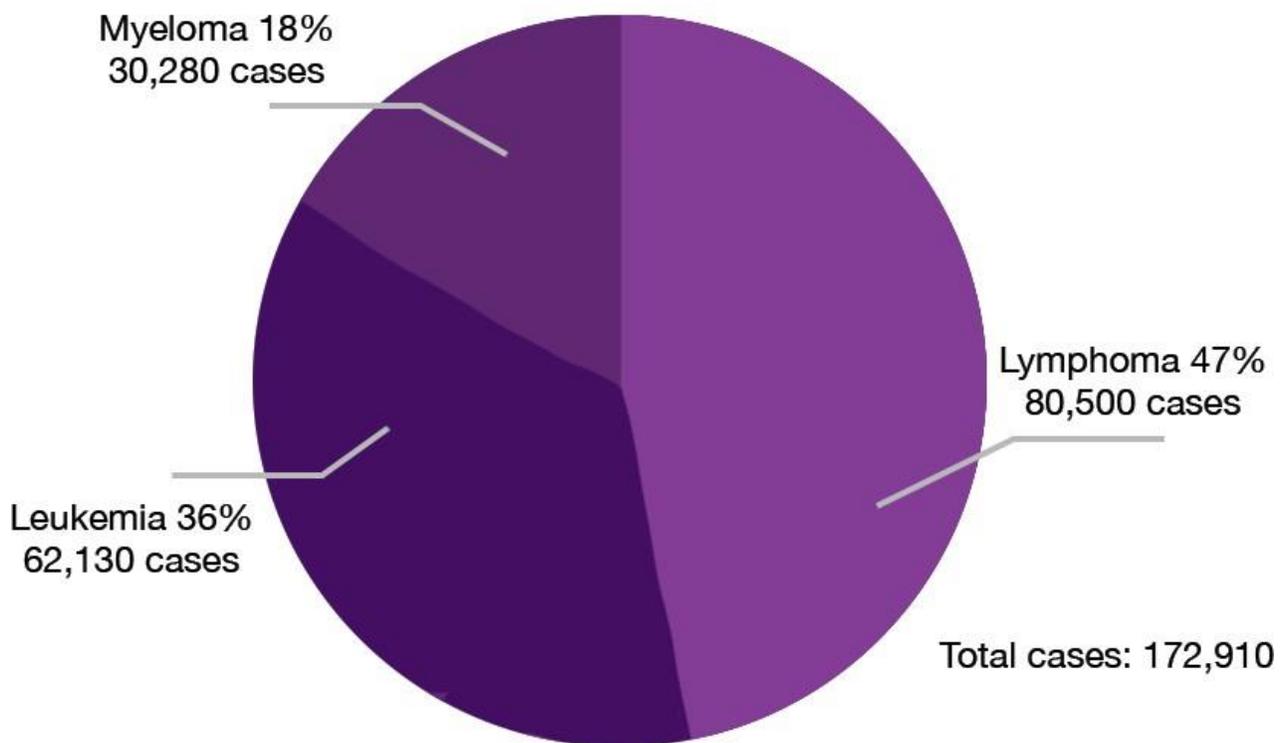
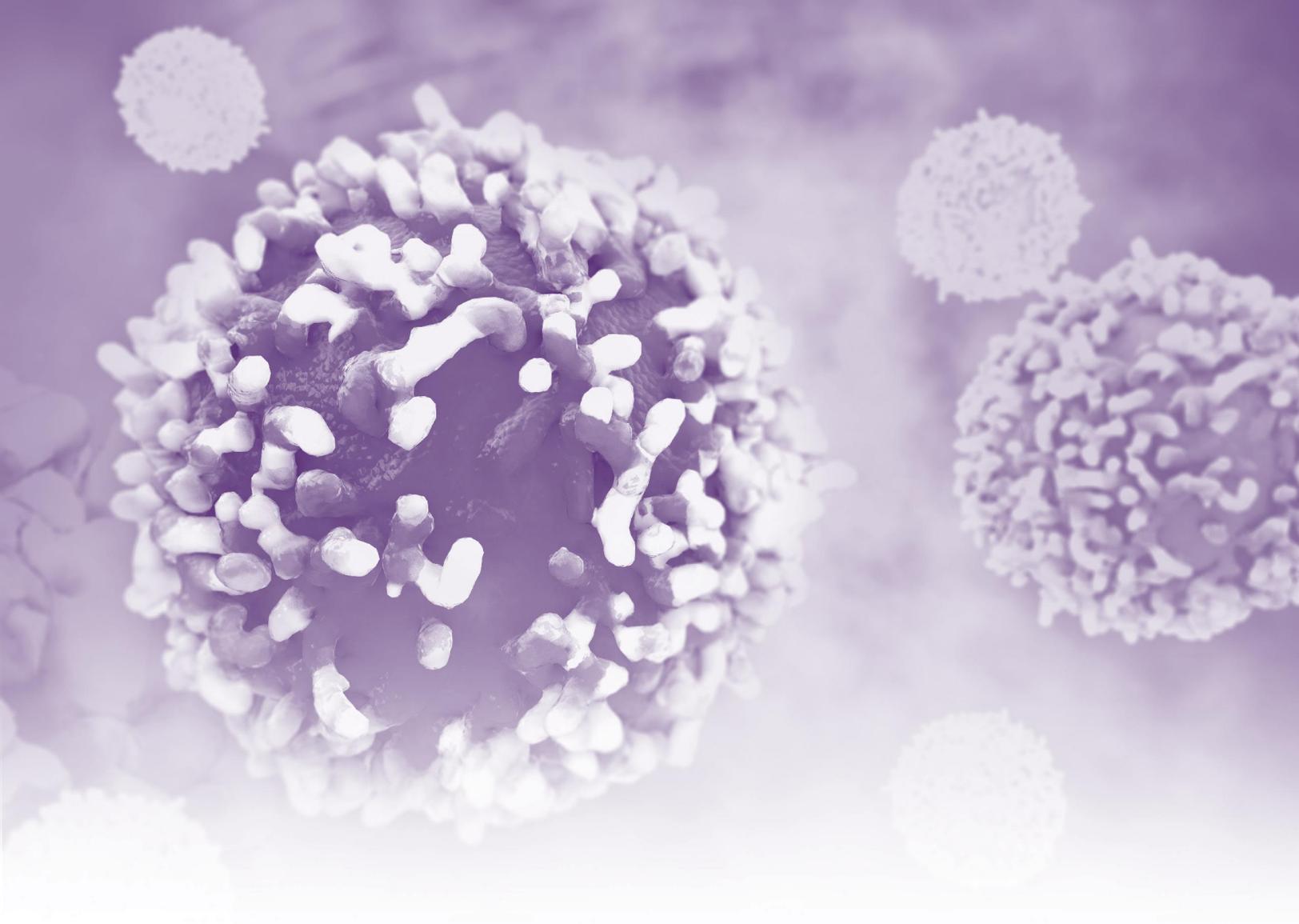


Figure 1:
<https://www.lls.org/facts-and-statistics/facts-and-statistics-overview>

A microscopic view of several spherical cancer cells. The central cell is in sharp focus, showing a dark nucleus and a surface covered in numerous small, light-colored protrusions. Other similar cells are visible in the background, some in focus and some blurred.

WHAT ARE BLOOD CANCERS?

Regardless of where it occurs in the body, cancer is the uncontrollable dividing of abnormal cells which spread to surrounding tissue. In the case of blood cancers, otherwise known as hematologic cancers, the condition originates from cells within the blood. Oftentimes, this process begins in the bone marrow where blood is produced.

The most common forms of blood cancers are:

- **Leukemia**
- **Multiple Myeloma**
- **Non-Hodgkin Lymphoma**
- **Hodgkin Lymphoma**

LEUKEMIA

Leukemia is a type of cancer that forms from the multiplication of immature blood cells which crowd out healthy ones in the bone marrow. While it is the most common form of childhood cancer, leukemia affects patients of all ages and is actually most often found in older adults. It can be acute (fast growing) or chronic (slow growing) and can occur in the white blood cells, red blood cells, or platelets. These factors help determine which form of leukemia a patient may have.

Acute Lymphoblastic Leukemia (ALL) – ALL is most commonly diagnosed in children under the age of 15. This particular form of leukemia is fast growing and originates within early stage white blood cells known as lymphocytes. As these cells crowd out normal, healthy white blood cells, it becomes increasingly difficult for the body to fight off infection.

The most effective and commonly used therapies for ALL include chemotherapy, targeted therapy, and stem cell transplant. Treatment generally takes place over a course of two years, with 98 percent of patients going quickly into remission and 90 percent of those eventually being cured².

Chronic Myelogenous Leukemia (CML) – CML is a type of cancer that develops in blood-forming cells known as myeloid cells. These cells, which make platelets, red blood cells, and most white blood cells, undergo a genetic mutation early in their development. CML is slow growing and only accounts for about 10 percent of all cases of leukemia.

While the phase of CML will help determine the exact course of treatment, targeted therapy is most often used. Other treatment options may include chemotherapy or stem cell transplant.

Acute Myelogenous Leukemia (AML) – AML most often arises from early stage white blood cells, but on occasion, it can develop from other types of blood-forming cells. Because it is fast growing, untreated AML can quickly spread to other parts of the body including the lymph nodes, brain, liver and spleen.

While other treatment options such as targeted therapy may help with AML, the most common and effective treatment in the majority of cases is a two-phase chemotherapy approach. The first phase, induction, is aimed at achieving complete remission, while the second phase, post-remission, uses additional chemotherapy treatment to destroy any cells that may be left behind but undetected by medical tests.

Chronic Lymphocytic Leukemia (CLL) – CLL begins in white blood cells within the bone marrow. It is most commonly seen among older adults and accounts for one-third of all cases of leukemia. Because it is slow growing, patients may not experience symptoms related to CLL for several years.

Treatment for CLL typically occurs in cases that are in the intermediate or advanced stages. Treatment options may include chemotherapy, targeted drug therapy, immunotherapy, or bone marrow transplant.

MULTIPLE MYELOMA

Multiple Myeloma is a form of blood cancer that originates in the blood's plasma cells. Made in the bone marrow, these cells are a particular form of white blood cells known as B lymphocytes and are responsible for producing certain types of antibodies that help the body ward off infection. As the abnormal plasma cells begin to multiply, they form tumors within the bone marrow and hinder the production normal, healthy blood cells.

Multiple Myeloma is most commonly found in adults over the age of 65. However, the disease is relatively uncommon among all age groups with a lifetime risk of less than 1 percent³. Among those most at risk for developing multiple myeloma are African Americans, who are twice as likely as white Americans to suffer this particular form of cancer⁴.

If Multiple Myeloma is not yet producing symptoms or does not show signs of progression, treatment may not be immediately necessary. In the case that treatment is needed, it may consist of targeted therapy, biological therapy, chemotherapy, radiation therapy, bone marrow transplant, or corticosteroids.

3. <https://www.cancer.org/cancer/multiple-myeloma/about/key-statistics.html>

4. <https://www.cancercenter.com/multiple-myeloma-cancer/risk-factors/>



NON-HODGKIN LYMPHOMA

Non-Hodgkin Lymphoma (NHL) is a type of cancer that arises from lymphocytes, a type of white blood cell, in the lymphatic system. It is one of the most common forms of cancer facing Americans today, accounting for 4 percent of all diagnosed cancers⁵. Like leukemia, Non-Hodgkin Lymphoma is most often seen in older adults but is also one of the more common cancers found among children as well.



There are over 60 total subtypes of NHL. Determining which one is present depends on a number of factors including how quickly the cancer is growing and the specific type of cell from which it originated. In total, there are 3 potential cell types from which NHL could develop:

- B-Cell Lymphoma – The most common form of NHL, B-Cell accounts for about 90% of cases
- T-Cell Lymphoma – About 10% of NHL cases are classified as T-Cell. It is more common in Asian countries.
- NK-Cell Lymphoma – NK-Cell is by far the rarest form of NHL and is responsible for less than 1% of all cases.

Treatment for Non-Hodgkin Lymphoma may consist of one or more therapies such as chemotherapy, targeted therapy, radiation, and immunotherapy. Thanks to advancements in many of these therapies, the prognosis for most NHL patients has improved greatly over the years. While the type and stage of the cancer plays a major role in long-term survival, overall, 67 percent of all NHL patients will reach 5 years, and 55 percent will surpass 10 years⁶.

5. <https://www.cancer.org/cancer/non-hodgkin-lymphoma/about/key-statistics.html>

6. <https://www.umm.edu/health/medical/reports/articles/nonhodgkins-lymphoma>



HODGKIN LYMPHOMA

Like Non-Hodgkin Lymphoma, Hodgkin Lymphoma originates in the lymph system from white blood cells called lymphocytes and most often starts in B lymphocytes. The key difference between the two, however, is the presence of a specific type of abnormal cell known as a Reed-Sternberg cell. When this cell is detected, the cancer is classified as Hodgkin Lymphoma. All other cases are non-Hodgkin. Hodgkin Lymphoma can occur at any age and is most common in young adults in their early 20s and in individuals over the age of 55. All cases of the disease will fall into one of two main categories:

Classic Hodgkin Lymphoma (CHL) – Classic Hodgkin Lymphoma accounts for 95 percent of all cases and is hallmarked by classic Reed-Sternberg cells. *There are four subtypes of CHL:*

- **Nodular Sclerosis Hodgkin Lymphoma** – This subtype of CHL is often seen in teens and young adults and is the most common form. It typically originates in the lymph nodes of the neck or chest.
- **Mixed Cellularity Hodgkin Lymphoma** – This is the second most common subtype of CHL and is largely seen in older adults. It most often begins in lymph nodes in the upper half of the body.
- **Lymphocyte-Rich Hodgkin Lymphoma** – Again, this is a subtype typically found in the upper portion of the body and is rarely seen in more than a few lymph nodes.
- **Lymphocyte-Depleted Hodgkin Lymphoma** – This subtype is the least common and is more likely to affect older adults. It is also more likely to already be in an advanced stage upon discovery. It may be found in lymph nodes in the abdomen, liver, spleen, and bone marrow.

Nodular Lymphocyte Predominant Hodgkin Lymphoma (NLPHL) – Only 5 percent of Hodgkin lymphomas are classified as NLPHL. In these cases, cancer cells are also Reed-Sternberg cells but are larger with a distinct, popcorn-like appearance.

Treatment of Hodgkin Lymphoma will depend on several factors including type, stage, aggressiveness, and symptoms of the cancer. For those cases that do require treatment, chemotherapy is generally the first choice. This may be combined with or followed by radiation therapy. If these therapies alone are not sufficient, patients may undergo a stem cell transplant or treatment with a monoclonal antibody or immunotherapy.

Ongoing advancements in treatments of the disease have continually improved the outlook for patients. Currently, the 5-year survival rate for all types of Hodgkin Lymphoma is 85 percent, and the 10-year survival rate is 80 percent⁷.

⁷ <https://www.cancer.net/cancer-types/lymphoma-hodgkin/statistics>



While cancers such as breast and lung continue to gain traction in public awareness, blood cancers are less commonly recognized despite accounting for over 10 percent of all cancer diagnoses. Fortunately, research and advancements in treatments in the field of hematology oncology means that despite the lack of public attention, patients who do suffer from blood cancers are living longer, healthier lives than ever before.

With the aid of experienced, board certified hematology and medical oncologists such as Dr. Vince Cataldo, Dr. Joseph Shows, and Dr. Siva Yadlapati who specialize in the diagnosis and treatment of all cancers and blood disorders, patients can rely on increasingly positive outcomes with the possibility of complete and lasting remission.

Learn more about our program by visiting the Lane Cancer Center website, or call us at (225) 658-4400.



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