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Non-Hodgkin Lymphoma Early Detection, Diagnosis, and Staging

Detection and Diagnosis

Catching cancer early often allows for more treatment options. Some early cancers may have signs and symptoms that can be noticed, but that is not always the case.

- [Can Non-Hodgkin Lymphoma Be Found Early?](#)¹
- [Signs and Symptoms of Non-Hodgkin Lymphoma](#)²
- [Tests for Non-Hodgkin Lymphoma](#)³

Stages of Non-Hodgkin Lymphoma

After a cancer diagnosis, staging provides important information about the extent of cancer in the body and anticipated response to treatment.

- [Non-Hodgkin Lymphoma Stages](#)⁴

Outlook (Prognosis)

Doctors often use survival rates as a standard way of discussing a person's outlook (prognosis). These numbers can't tell you how long you will live, but they might help you better understand your prognosis. Some people want to know the survival statistics for people in similar situations, while others might not find the numbers helpful, or might even not want to know them.

- [Survival Rates and Factors That Affect Prognosis \(Outlook\) for Non-Hodgkin Lymphoma](#)⁵

Questions to Ask About Non-Hodgkin Lymphoma

Here are some questions you can ask your cancer care team to help you better understand your lymphoma diagnosis and treatment options.

- [Questions to Ask About Non-Hodgkin Lymphoma](#)⁶

Can Non-Hodgkin Lymphoma Be Found Early?

Screening tests or exams are used to look for a disease in people who have no symptoms. At this time, there are no widely recommended screening tests for non-Hodgkin lymphoma (NHL). This is because no screening test has been shown to lower the risk of dying from this cancer. Still, in some cases lymphoma can be found early.

The best way to find lymphoma early is to pay attention to possible [signs and symptoms](#)¹. One of the most common symptoms is enlargement of one or more lymph nodes, causing a lump or bump under the skin which is usually not painful. This is most often on the side of the neck, in the armpit, or in the groin.

Other symptoms can include fever, chills, night sweats, weight loss, feeling tired, and swelling in the abdomen. More often these symptoms are caused by something other than lymphoma, but it's important to have them checked by a doctor, especially if they don't go away or get worse.

Careful, regular medical check-ups are important for people with known [risk factors](#)² for NHL (such as HIV infections, organ transplants, autoimmune disease, or prior cancer treatment). These people do not often get lymphoma, but they and their doctors should be aware of possible symptoms and signs of lymphoma.

Hyperlinks

1. <https://www.cancer.org/content/cancer/en/cancer/non-hodgkin-lymphoma/detection-diagnosis-staging/signs-symptoms.html>

2. <https://www.cancer.org/content/cancer/en/cancer/non-hodgkin-lymphoma/causes-risks-prevention/risk-factors.html>

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Signs and Symptoms of Non-Hodgkin Lymphoma

Non-Hodgkin lymphoma (NHL) can cause many different signs and symptoms, depending on the type of lymphoma and where it is in the body. Sometimes it might not cause any symptoms until it grows quite large.

Having one or more symptoms doesn't mean you definitely have lymphoma. In fact, many of the symptoms listed here are more likely to be caused by other conditions, such as an infection. Still, if you have any of these symptoms, have them checked by a doctor so that the cause can be found and treated, if needed.

Some common signs and symptoms include:

- Enlarged lymph nodes
- Chills
- Weight loss
- Fatigue (feeling very tired)

- Swollen abdomen (belly)
- Feeling full after only a small amount of food
- Chest pain or pressure
- Shortness of breath or cough
- Severe or frequent infections
- Easy bruising or bleeding

Some people with Non-Hodgkin lymphoma have what are known as *B symptoms*:

- Fever (which can come and go over several days or weeks) without an infection
- Drenching night sweats
- Weight loss without trying (at least 10% of body weight over 6 months)

Swollen lymph nodes

Non-Hodgkin lymphoma can cause lymph nodes to become enlarged. Enlarged lymph nodes close to the surface of the body (such as on the sides of the neck, in the groin or underarm areas, or above the collar bone), may be seen or felt as **lumps under the skin**. These are usually not painful.

Although enlarged lymph nodes are a common symptom of lymphoma, they are much more often caused by infections. Lymph nodes that grow in reaction to infection are called *reactive nodes* or *hyperplastic nodes* and are often tender to the touch.

Symptoms from lymphoma in the abdomen

Lymphomas that start or grow in the abdomen (belly) can cause **swelling or pain in the abdomen**. This could be from lymph nodes or organs such as the spleen or liver enlarging, but it can also be caused by the build-up of large amounts of fluid.

An enlarged spleen might press on the stomach, which can cause a **loss of appetite** and **feeling full after only a small meal**.

Lymphomas in the stomach or intestines can cause **abdominal pain, nausea, or vomiting**.

Symptoms from lymphoma in the chest

When lymphoma starts in the thymus or lymph nodes in the chest, it may press on the nearby trachea (windpipe), which can cause **coughing, trouble breathing**, or a feeling of **chest pain or pressure**.

The superior vena cava (SVC) is the large vein that carries blood from the head and arms back to the heart. It passes near the thymus and lymph nodes inside the chest. Lymphomas in this area may push on the SVC, which can cause the blood to back up in the veins. This can lead to swelling (and sometimes a bluish-red color) in the head, arms, and upper chest. It can also cause trouble breathing and a change in consciousness if it affects the brain. This is called **SVC syndrome**. It can be life-threatening and must be treated right away.

Symptoms from lymphoma affecting the brain

Lymphomas of the brain, called primary brain lymphomas, can cause **headache, trouble thinking, weakness in parts of the body, personality changes**, and sometimes **seizures**.

Other types of lymphoma can spread to the area around the brain and spinal cord. This can cause problems such as **double vision, facial numbness, and trouble speaking**.

Symptoms from lymphoma in the skin

Lymphomas of the skin may be seen or felt. They often appear as **itchy, red or purple lumps or bumps under the skin**. For more details, see [Lymphoma of the Skin](#).¹

Hyperlinks

1. <https://www.cancer.org/content/cancer/en/cancer/skin-lymphoma.html>

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Freedman AS, Jacobson CA, Mauch P, Aster JC. Chapter 103: Non-Hodgkin's lymphoma. In: DeVita VT, Lawrence TS, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology*. 10th ed. Philadelphia, Pa: Lippincott Williams & Wilkins; 2015.

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Tests for Non-Hodgkin Lymphoma

Most people with non-Hodgkin lymphoma (NHL) see their doctor because they have felt a lump that hasn't gone away, they develop some of the other [symptoms of NHL](#)¹, or they just don't feel well and go in for a check-up.

If you have signs or symptoms that suggest you might have lymphoma, exams and tests will be done to find out for sure and, if so, to determine the exact [type of lymphoma](#)².

Medical history and physical exam

Your doctor will want to get a complete medical history, including information about your symptoms, possible [risk factors](#)³, and other medical conditions.

Next, the doctor will examine you, paying special attention to the lymph nodes and other areas of the body that might be affected, including the spleen and liver. Because infections are the most common cause of enlarged lymph nodes, the doctor will look for an infection near the swollen lymph nodes.

The doctor also might order blood tests to look for signs of infection or other problems. Blood tests aren't used to diagnose lymphoma, though. If the doctor suspects that lymphoma might be causing your symptoms, he or she might recommend a biopsy of a swollen lymph node or other affected area.

Biopsy

For a biopsy, a small piece of a lymph node or, more often, an entire lymph node is removed for testing in a lab.

A biopsy is the only way to confirm a person has NHL. But it's not always done right away because many symptoms of NHL can also be caused by other problems, like an

infection, or by other kinds of cancer. For example, enlarged lymph nodes are more often caused by infections than by lymphoma. Because of this, doctors often prescribe antibiotics and wait a few weeks to see if the lymph nodes shrink. If the nodes stay the same or continue to grow, the doctor might order a biopsy.

A biopsy might be needed right away if the size, texture, or location of a lymph node or the presence of other symptoms strongly suggests lymphoma.

Biopsies to diagnose non-Hodgkin lymphoma

There are several types of biopsies. Doctors choose which one to use based on each person's situation.

Excisional or incisional biopsy: This is the preferred and most common type of biopsy if lymphoma is suspected, because it almost always provides enough of a sample to diagnose the exact type of NHL.

In this procedure, a surgeon cuts through the skin to remove the lymph node.

- If the doctor removes the entire lymph node, it is called an **excisional biopsy**.
- If a small part of a larger tumor or node is removed, it is called an **incisional biopsy**.

If the enlarged node is just under the skin, this is a fairly simple operation that can often be done with local anesthesia (numbing medicine). But if the node is inside the chest or abdomen, you will be sedated (given drugs to make you drowsy and relaxed) or given general anesthesia (drugs to put you into a deep sleep).

Needle biopsy: Needle biopsies are less invasive than excisional or incisional biopsies, but the drawback is that they might not remove enough of a sample to diagnose lymphoma (or to determine which type it is). Most doctors do not use needle biopsies to diagnose lymphoma. But if the doctor suspects that your lymph node is enlarged because of an infection or by the spread of cancer from another organ (such as the breast, lungs, or thyroid), a needle biopsy may be the first type of biopsy done. An excisional biopsy might still be needed even after a needle biopsy has been done, to diagnose and classify lymphoma.

There are 2 main types of needle biopsies:

- In a **fine needle aspiration (FNA) biopsy**, the doctor uses a very thin, hollow needle attached to a syringe to withdraw (aspirate) a small amount of tissue from

an enlarged lymph node or a tumor mass.

- For a **core needle biopsy**, the doctor uses a larger needle to remove a slightly larger piece of tissue.

To biopsy an enlarged node just under the skin, the doctor can aim the needle while feeling the node. If the node or tumor is deep inside the body, the doctor can guide the needle using a computed tomography (CT) scan or ultrasound (see descriptions of imaging tests later in this section).

If lymphoma has already been diagnosed, needle biopsies are sometimes used to check abnormal areas in other parts of the body that might be from the lymphoma spreading or coming back after treatment.

Other types of biopsies

These procedures are not normally done to diagnose lymphoma, but they might be used to help determine the stage (extent) of a lymphoma that has already been diagnosed.

Bone marrow aspiration and biopsy: These procedures are often done after lymphoma has been diagnosed to help determine if it has reached the bone marrow. The 2 tests are often done at the same time. The samples are usually taken from the back of the pelvic (hip) bone, although in some cases they may be taken from other bones.

For a **bone marrow aspiration**, you lie on a table (either on your side or on your belly). After cleaning the skin over the hip, the doctor numbs the area and the surface of the bone with local anesthetic, which can cause a brief stinging or burning sensation. A thin, hollow needle is then inserted into the bone and a syringe is used to suck out a small amount of liquid bone marrow. Even with the anesthetic, most people still have some brief pain when the marrow is removed.

A **bone marrow biopsy** is usually done just after the aspiration. A small piece of bone and marrow is removed with a slightly larger needle that is pushed into the bone. The biopsy can also cause some brief pain.

Lumbar puncture (spinal tap): This test looks for lymphoma cells in the cerebrospinal fluid (CSF), which is the liquid that bathes the brain and spinal cord. Most people with lymphoma will not need this test. But doctors may order it for certain types of lymphoma or if a person has symptoms that suggest the lymphoma may have reached the brain.

For this test, you may lie on your side or sit up. The doctor first numbs an area in the lower part of your back over the spine. A small, hollow needle is then placed between the bones of the spine to withdraw some of the fluid.

Pleural or peritoneal fluid sampling: Lymphoma that has spread to the chest or abdomen can cause fluid to build up. Pleural fluid (inside the chest) or peritoneal fluid (inside the abdomen) can be removed by placing a hollow needle through the skin into the chest or abdomen.

- When this procedure is used to remove fluid from the area around the lung, it's called a **thoracentesis**.
- When it is used to collect fluid from inside the abdomen, it's known as a **paracentesis**.

The doctor uses a local anesthetic to numb the skin before inserting the needle. The fluid is then taken out and checked in the lab for lymphoma cells.

Lab tests on biopsy samples

All biopsy samples and fluids are looked at in the lab by a pathologist (a doctor specially trained to recognize cancer cells). The size and shape of the cells and how they are arranged may show not only if the person has a lymphoma, but also what type of lymphoma it is. But usually other types of lab tests are needed as well.

Flow cytometry and immunohistochemistry: For both flow cytometry and immunohistochemistry, the biopsy samples are treated with antibodies that stick to certain proteins on cells. The cells are then looked at in the lab (immunohistochemistry) or with a special machine (for flow cytometry), to see if the antibodies attached to them.

These tests can help determine whether a lymph node is swollen because of lymphoma, some other cancer, or a non-cancerous disease. The tests can also be used for *immunophenotyping* – determining which type of lymphoma a person has, based on certain proteins in or on the cells. Different types of lymphocytes have different proteins on their surface, which correspond to the type of lymphocyte and how mature it is.

Chromosome tests: Normal human cells have 23 pairs of chromosomes (strands of DNA), each of which is a certain size and looks a certain way in the lab. But in some types of lymphoma, the cells have changes in their chromosomes, such as having too many, too few, or abnormal chromosomes. These changes can often help identify the type of lymphoma.

- **Cytogenetics:** In this lab test, the cells are checked for any abnormalities in the chromosomes.
- **Fluorescent in situ hybridization (FISH):** This test looks more closely at lymphoma cell DNA using special fluorescent dyes that only attach to specific genes or parts of chromosomes. FISH can find most chromosome changes that can be seen in standard cytogenetic tests, as well as some gene changes too small to be seen with cytogenetic testing. FISH is very accurate and can usually provide results within a couple of days.
- **Polymerase chain reaction (PCR):** PCR is a very sensitive DNA test that can find gene changes and certain chromosome changes too small to be seen with a microscope, even if very few lymphoma cells are present in a sample.

For more information, see [Testing Biopsy and Cytology Specimens for Cancer](#)⁴.

Imaging tests

Imaging tests use x-rays, sound waves, magnetic fields, or radioactive particles to produce pictures of the inside of the body. These tests might be done for a number of reasons, including:

- To look for possible causes of certain symptoms (such as enlarged lymph nodes in the chest in someone having chest pain or trouble breathing)
- To help determine the stage (extent) of the lymphoma
- To help show if treatment is working
- To look for possible signs of lymphoma coming back after treatment

Chest x-ray

The [chest might be x-rayed](#)⁵ to look for enlarged lymph nodes in this area.

Computed tomography (CT) scan

A [CT scan](#)⁶ combines many x-rays to make detailed, cross-sectional images of your body. This scan can help tell if any lymph nodes or organs in your body are enlarged. CT scans are useful for looking for lymphoma in the abdomen, pelvis, chest, head, and neck.

CT-guided needle biopsy: A CT can also be used to guide a biopsy needle into a suspicious area. For this procedure, you lie on the CT scanning table while the doctor moves a biopsy needle through the skin and toward the area. CT scans are repeated until the needle is in the right place. A biopsy sample is then removed to be looked at in the lab.

Magnetic resonance imaging (MRI) scan

Like CT scans, [MRI scans](#)⁷ show detailed images of soft tissues in the body. But MRI scans use radio waves and strong magnets instead of x-rays. This test is not used as often as CT scans for lymphoma, but if your doctor is concerned about spread to the spinal cord or brain, MRI is very useful for looking at these areas.

Ultrasound

[Ultrasound](#)⁸ uses sound waves and their echoes to create pictures of internal organs or masses. In the most common type of ultrasound, a small, microphone-like instrument called a *transducer* is placed on the skin (which is first lubricated with a gel). It gives off sound waves and picks up the echoes as they bounce off the organs. The echoes are converted by a computer into an image on a computer screen.

Ultrasound can be used to look at lymph nodes near the surface of the body or to look inside your abdomen for enlarged lymph nodes or organs such as the liver and spleen. It can also detect kidneys that have become swollen because the outflow of urine has been blocked by enlarged lymph nodes.

Positron emission tomography (PET) scan

For a [PET scan](#)⁹, you are injected with a slightly radioactive form of sugar, which collects mainly in cancer cells. A special camera is then used to create a picture of areas of radioactivity in the body. The picture is not detailed like a CT or MRI scan, but it can provide helpful information about your whole body.

If you have lymphoma, a PET scan might be done to:

- See if an enlarged lymph node contains lymphoma.
- Find small areas that might be lymphoma, even if the area looks normal on a CT scan.
- Check if a lymphoma is responding to treatment. Some doctors will repeat the PET scan after 1 or 2 courses of chemotherapy. If the chemotherapy is working, the

lymph nodes will no longer absorb the radioactive sugar.

- Help decide whether an enlarged lymph node still contains lymphoma or is just scar tissue after treatment.

PET/CT scan: Some machines can do both a PET scan and a CT scan at the same time. This lets the doctor compare areas of higher radioactivity on the PET scan with the more detailed appearance of that area on the CT scan. PET/CT scans can often help pinpoint the areas of lymphoma better than a CT scan alone.

Bone scan

This test is usually done if a person is having bone pain or has lab results that suggest the lymphoma may have reached the bones.

For bone scans, a radioactive substance called *technetium* is injected into a vein. It travels to damaged areas of bone, and a special camera can then detect the radioactivity. Lymphoma often causes bone damage, which may be seen on a bone scan. But bone scans can't show the difference between cancers and non-cancerous problems, such as arthritis and fractures, so further tests might be needed.

Other tests

Blood tests

[Blood tests](#)¹⁰ are not used to diagnose lymphoma, but they can sometimes help determine how advanced the lymphoma is.

- A **complete blood count (CBC)** measures the levels of different cells in the blood. For a person already known to have lymphoma, low blood cell counts might mean that the lymphoma is growing in the bone marrow and affecting new blood cell formation.
- **Blood chemistry tests** are often done to look at how well the kidney and liver function are working.
- If lymphoma has been diagnosed, the **lactate dehydrogenase (LDH)** level may be checked. LDH levels are often increased in patients with lymphomas.
- For some types of lymphoma or if certain treatments might be used, your doctor may also advise you to have tests to see if you've been infected with certain viruses, such as **hepatitis B virus (HBV)**, **hepatitis C virus (HCV)**, or **human immunodeficiency virus (HIV)**. Infections with these viruses may affect your

treatment.

Tests of heart and lung function

These tests are not used to diagnose lymphoma, but they might be done if you are going to get certain chemotherapy drugs commonly used to treat lymphoma that could affect the heart or the lungs.

- Your heart function may be checked with an **echocardiogram** (an ultrasound of the heart) or a **MUGA scan**.
- Your lung function may be checked with **pulmonary function tests**, in which you breathe into a tube connected to a machine.

Hyperlinks

1. <https://www.cancer.org/content/cancer/en/cancer/non-hodgkin-lymphoma/detection-diagnosis-staging/signs-symptoms.html>
2. <https://www.cancer.org/content/cancer/en/cancer/non-hodgkin-lymphoma/about/what-is-non-hodgkin-lymphoma.html>
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Non-Hodgkin Lymphoma Stages

After someone is diagnosed with Non-Hodgkin Lymphoma, doctors will try to figure out if it has spread, and if so, how far. This process is called *staging*. The stage of a cancer describes how much cancer is in the body. It helps determine how serious the cancer is and how best to treat it. .

Tests used to gather information for staging can include:

- Physical exam
- Biopsies of enlarged lymph nodes or other abnormal areas
- Blood tests
- Imaging tests, such as PET and CT scans
- Bone marrow aspiration and biopsy (often but not always done)
- Lumbar puncture (spinal tap – this may not need to be done)

In general, the results of imaging tests such as PET or CT scans are the most important when determining the stage of the lymphoma.

Lugano classification

A staging system is a way for members of a cancer care team to sum up the extent of a cancer's spread. The current staging system for NHL in adults is known as the **Lugano classification**, which is based on the older **Ann Arbor system**.

The stages are described by Roman numerals I through IV (1-4). Limited stage (I or II) lymphomas that affect an organ outside the lymph system (an extranodal organ) have an E added (for example, stage IIE).

Stage I

Either of the following means the disease is stage I:

- The lymphoma is in only 1 lymph node area or lymphoid organ such as the tonsils (I).
- The cancer is found only in 1 area of a single organ outside of the lymph system (IE).

Stage II

Either of the following means the disease is stage II:

- The lymphoma is in 2 or more groups of lymph nodes on the same side of (above or below) the diaphragm (the thin band of muscle that separates the chest and abdomen). For example, this might include nodes in the underarm and neck area (II) but not the combination of underarm and groin nodes (III).
- The lymphoma is in a group of lymph node(s) and in one area of a nearby organ (IIE). It may also affect other groups of lymph nodes on the same side of the diaphragm.

Stage III

Either of the following means the disease is stage III:

- The lymphoma is in lymph node areas on both sides of (above and below) the diaphragm.
- The lymphoma is in lymph nodes above the diaphragm, as well as in the spleen.

Stage IV

The lymphoma has spread widely into at least one organ outside the lymph system, such as the bone marrow, liver, or lung.

Bulky disease

This term is often used to describe large tumors in the chest. It is especially important for stage II lymphomas, as bulky disease might need more intensive treatment.

Staging small lymphocytic lymphoma (SLL)/chronic lymphocytic leukemia (CLL)

The system above is most often used to stage this lymphoma if it is only in lymph nodes. But if the disease is affecting the blood or bone marrow, it is often staged using the systems for CLL. See [Chronic Lymphocytic Leukemia Stages](#)¹.

How staging might affect treatment

The stage of a lymphoma is important when determining a person's treatment options, but it is more important for some types of lymphoma than for others. For many of the more common types of NHL, treatment is based in part on whether the lymphoma is "limited" (stage I or stage II non-bulky) or "advanced" (stage III or IV). For stage II bulky lymphomas, certain other factors (known as *prognostic factors*) are used to help determine if the lymphoma should be treated as limited or advanced.

For some other types of NHL, such as fast-growing lymphomas like Burkitt lymphoma, the stage is less important when deciding on treatment.

See [Treating B-cell Non-Hodgkin Lymphomas](#)² and [Treating T-cell Non-Hodgkin Lymphomas](#)³ for more on this.

Hyperlinks

1. <https://www.cancer.org/content/cancer/en/cancer/chronic-lymphocytic-leukemia/detection-diagnosis-staging/staging.html>
2. <https://www.cancer.org/content/cancer/en/cancer/non-hodgkin-lymphoma/treating/b-cell-lymphoma.html>
3. <https://www.cancer.org/content/cancer/en/cancer/non-hodgkin-lymphoma/treating/t-cell-lymphoma.html>

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Survival Rates and Factors That Affect Prognosis (Outlook) for Non-Hodgkin Lymphoma

Survival rates tell you what portion of people with the same type and stage of cancer are still alive a certain amount of time (usually 5 years) after they were diagnosed. They can't tell you how long you will live, but they may help give you a better understanding about how likely it is that your treatment will be successful. Some people will want to know the survival rates for their cancer, and some people won't. If you don't want to know, you don't have to.

What is a survival rate?

Statistics on the outlook for a certain type of cancer are often given as 5-year survival rates. The 5-year survival rate is the percentage of people who live at least 5 years after being diagnosed with cancer. For example, a 5-year survival rate of 90% means that an estimated 90 out of 100 people who have that cancer are still alive 5 years after being diagnosed. Keep in mind, however, that many of these people live much longer than 5 years after diagnosis.

Relative survival rates are a more accurate way to estimate the effect of cancer on survival. These rates compare people with cancer to similar people in the overall population. For example, if the 5-year relative survival rate for a specific type of cancer is 90%, it means that people who have that cancer are, on average, about 90% as likely as people who don't have that cancer to live for at least 5 years after being diagnosed.

But remember, all survival rates are estimates – your outlook can vary based on a number of factors specific to you.

Cancer survival rates don't tell the whole story

Survival rates are often based on previous outcomes of large numbers of people who had the disease, but they can't predict what will happen in any particular person's case. There are a number of limitations to remember:

- The numbers below are among the most current available. But to get 5-year survival rates, doctors have to look at people who were treated at least 5 years ago.

As treatments are improving over time, people who are now being diagnosed with non-Hodgkin lymphoma (NHL) may have a better outlook than these statistics show.

- These statistics are based on when the cancer was first diagnosed. They do not apply to cancers that later come back or spread, for example.
- The outlook for people with lymphoma varies by the type and stage (extent) of the lymphoma – in general, the survival rates are higher for people with earlier stage cancers. But other factors can also affect a person's outlook (see below). The outlook for each person is specific to their circumstances.

Your doctor can tell you how these numbers may apply to you, as he or she is familiar with your particular situation.

Survival rates for non-Hodgkin lymphoma

The overall 5-year relative survival rate for people with NHL is 71%. But it's important to keep in mind that survival rates can vary widely for different types and stages of lymphoma.

For some types of lymphoma the stage isn't too helpful in determining a person's outlook. In these cases, other factors can give doctors a better idea about a person's prognosis.

International Prognostic Index (IPI)

The International Prognostic Index (IPI) was first developed to help doctors determine the outlook (prognosis) for people with fast-growing (aggressive) lymphomas. However, it has proven useful for most other lymphomas as well (other than slow-growing [indolent] follicular lymphomas, which are discussed below). The index depends on 5 factors:

- The patient's age
- The stage of the lymphoma
- Whether or not the lymphoma is in organs outside the lymph system
- Performance status (PS) – how well a person can complete normal daily activities
- The blood (serum) level of lactate dehydrogenase (LDH), which goes up with the amount of lymphoma in the body

Good prognostic factors

Poor prognostic factors

Age 60 or below	Age above 60
Stage I or II	Stage III or IV
No lymphoma outside of lymph nodes, or lymphoma in only 1 area outside of lymph nodes	Lymphoma is in more than 1 organ of the body outside of lymph nodes
PS: Able to function normally	PS: Needs a lot of help with daily activities
Serum LDH is normal	Serum LDH is high

Each poor prognostic factor is assigned 1 point. People with no poor prognostic factors would have a score of 0, while those with all of the poor prognostic factors would have a score of 5. The index divides people with lymphomas into 4 risk groups:

- Low risk (0 or 1 poor prognostic factors)
- Low-intermediate risk (2 poor prognostic factors)
- High-intermediate risk (3 poor prognostic factors)
- High risk (4 or 5 poor prognostic factors)

In the studies used to develop the index, about 75% of people in the lowest risk group lived at least 5 years, whereas only about 30% of people in the highest risk group lived at least 5 years. These numbers show the difference the index scores can make, but the IPI was devised in the early 1990s. Newer treatments have been developed since then, so current survival rates are likely to be higher.

Revised International Prognostic Index

A more recent version of the IPI is based on people with fast-growing lymphomas who have received more modern treatment, including a newer drug called rituximab (Rituxan), which is described in [Immunotherapy for Non-Hodgkin Lymphoma¹](#). The revised IPI uses the same factors but divides patients into only 3 risk groups:

- Very good (no poor prognostic factors)
- Good (1 or 2 poor prognostic factors)
- Poor (3 or more poor prognostic factors)

In the study used to develop this index, about 95% of people in the very good risk group lived at least 4 years, whereas only about 55% of people in the poor risk group lived at least 4 years.

The IPI allows doctors to plan treatment better than they could just based on the type and stage of the lymphoma. This has become more important as new, more effective treatments have been developed that sometimes have more side effects. The index helps doctors figure out whether these treatments are needed.

Follicular Lymphoma International Prognostic Index (FLIPI)

The IPI is useful for most lymphomas, but it's not as helpful for follicular lymphomas, which tend to be slower growing. Doctors have developed the Follicular Lymphoma International Prognostic Index (FLIPI) specifically for this type of lymphoma. It uses slightly different prognostic factors than the IPI.

Good prognostic factors

Age 60 or below

Stage I or II

Blood hemoglobin 12 g/dL or above

4 or fewer lymph node areas affected

Serum LDH is normal

Poor prognostic factors

Age above 60

Stage III or IV

Blood hemoglobin level below 12 g/dL

More than 4 lymph node areas affected

Serum LDH is high

Patients are assigned a point for each poor prognostic factor. People without any poor prognostic factors would have a score of 0, while those with all poor prognostic factors would have a score of 5. The index then divides people with follicular lymphoma into 3 groups:

- Low risk (no or 1 poor prognostic factor[s])
- Intermediate risk (2 poor prognostic factors)
- High risk (3 or more poor prognostic factors)

The study used to develop the FLIPI produced the following survival rates:

Risk group	5-year survival rate	10-year survival rate
Low-risk	91%	71%
Intermediate-risk	78%	51%
High-risk	53%	36%

These rates reflect the number of people who lived for *at least* 5 or 10 years after being diagnosed – many people lived longer than this. The rates were based on people

diagnosed with follicular lymphoma in the 1980s and 1990s and before the drug rituximab was introduced.

The addition of [rituximab](#)², a monoclonal antibody drug, to chemotherapy has become [standard treatment for follicular lymphoma](#)³ and has improved overall survival rates. One study looking at just over 2,000 people with follicular lymphoma diagnosed between 2004 and 2007, the majority (~70%) of whom received rituximab, showed the estimated survival rates at 2 years to be:

Risk group	2-year survival rate
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Low-risk	98%
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Intermediate-risk	94%
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High-risk	87%
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Remember, all of these survival rates are only estimates – they can't predict what will happen to any individual person. We understand that these statistics can be confusing and may lead you to have more questions. Talk to your doctor to better understand your specific situation.

Hyperlinks

1. <https://www.cancer.org/content/cancer/en/cancer/non-hodgkin-lymphoma/treating/immunotherapy.html>
2. <https://www.cancer.org/content/cancer/en/cancer/non-hodgkin-lymphoma/treating/immunotherapy.html>
3. <https://www.cancer.org/content/cancer/en/cancer/non-hodgkin-lymphoma/treating/b-cell-lymphoma.html>

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Questions to Ask About Non-Hodgkin Lymphoma

It's important to have honest, open discussions with your cancer care team. They want to answer all of your questions so you can make informed treatment and life decisions. For instance, consider these questions:

When you're told you have non-Hodgkin lymphoma

- What [type of non-Hodgkin lymphoma](#)¹ do I have?
- Has my biopsy been reviewed by a pathologist who's an expert on lymphoma?
- Do I need any other [tests](#)² before we can decide on treatment?
- Do I need to see any other types of doctors?
- What's the [stage \(extent\) of the lymphoma](#)³? What does that mean in my case?
- Are there other factors that could affect my treatment options?
- If I'm concerned about the costs and insurance coverage for my diagnosis and treatment, who can help me?

When deciding on a treatment plan

- How much experience do you have treating this type of lymphoma?
- What are my [treatment options](#)⁴? What do you recommend, and why?
- Do we need to treat the lymphoma right away?
- Should I get a [second opinion](#)⁵ before starting treatment? Can you suggest a doctor or cancer center?
- What should I do to be ready for treatment?
- How long will treatment last? What will it be like? Where will it be done?
- What risks or side effects are there to the treatments you suggest?
- How might treatment affect my daily activities?
- What's my outlook for survival?
- What are the chances of the lymphoma coming back with these treatment plans?
- What would we do if the treatment doesn't work or if the lymphoma comes back?

During treatment

Once treatment begins, you'll need to know what to expect and what to look for. Not all of these questions may apply to you, but getting answers to the ones that do may be helpful.

- How will we know if the treatment is working?
- Is there anything I can do to help manage [side effects](#)⁶?
- What symptoms or side effects should I tell you about right away?
- How can I reach you on nights, holidays, or weekends?
- Are there any limits on what I can do?
- Can you suggest a mental health professional I can see if I start to [feel overwhelmed, depressed, or distressed](#)⁷?

After treatment

- What type of [follow-up](#)⁸ will I need after treatment?
- What symptoms should I watch for?
- How will we know if the lymphoma has come back? What would my options be if

that happens?

Along with these sample questions, be sure to write down some of your own. For instance, you might want more information about recovery times so that you can plan your work or activity schedule. Or you may want to ask about [clinical trials](#)⁹ for which you qualify.

Keep in mind that doctors aren't the only ones who can give you information. Other health care professionals, such as nurses and social workers, can answer some of your questions. To find out more about communicating with your health care team, see [The Doctor-Patient Relationship](#)¹⁰.

Hyperlinks

1. <https://www.cancer.org/content/cancer/en/cancer/non-hodgkin-lymphoma/about/types-of-non-hodgkin-lymphoma.html>
2. <https://www.cancer.org/content/cancer/en/cancer/non-hodgkin-lymphoma/detection-diagnosis-staging/how-diagnosed.html>
3. <https://www.cancer.org/content/cancer/en/cancer/non-hodgkin-lymphoma/detection-diagnosis-staging/staging.html>
4. <https://www.cancer.org/content/cancer/en/cancer/non-hodgkin-lymphoma/treating.html>
5. <https://www.cancer.org/content/cancer/en/treatment/finding-and-paying-for-treatment/choosing-your-treatment-team/seeking-a-second-opinion.html>
6. <https://www.cancer.org/content/cancer/en/treatment/treatments-and-side-effects/physical-side-effects.html>
7. <https://www.cancer.org/content/cancer/en/treatment/treatments-and-side-effects/emotional-side-effects.html>
8. <https://www.cancer.org/content/cancer/en/cancer/non-hodgkin-lymphoma/after-treatment/follow-up.html>
9. <https://www.cancer.org/content/cancer/en/treatment/treatments-and-side-effects/clinical-trials.html>
10. <https://www.cancer.org/content/cancer/en/treatment/understanding-your-diagnosis/talking-about-cancer/the-doctor-patient-relationship.html>

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