

Fast Facts for Patients

Follicular Lymphoma



HEALTHCARE



First, the facts...

- 1 Follicular lymphoma is a slow-growing type of blood cancer involving the lymph nodes. It is the most common type of slow-growing lymphoma.
- There is no single known direct cause of follicular lymphoma but it likely involves genetic, environmental, and immunerelated factors.
- Follicular lymphoma is more commonly diagnosed in people older than 60, but adults of any age can be affected.
- 4 Swollen lymph nodes are often the first sign of follicular lymphoma though some people have no symptoms when they are diagnosed.
- Follicular lymphoma cannot be completely cured but treatment is available that allows many people to have a normal lifespan and a good quality of life.

This booklet aims to help you understand your disease and options so you can talk to your medical team and family about your condition and its treatment. You can use the spaces on the pages to organize your notes and questions.

The information in this booklet is general and if you have any concerns about your health, you should speak directly with your doctor or healthcare team.

Useful words and terms appear in bold in this booklet and as a list on page 59.



HEALTHCARE

What is follicular lymphoma?

Follicular lymphoma (FL) is a blood cancer involving white blood cells called **lymphocytes**.

Lymphomas are divided into two groups: Hodgkin lymphoma and non-Hodgkin lymphoma. FL is a non-Hodgkin lymphoma. FL is also a low-grade lymphoma, which means it develops slowly. Your doctors may use the word indolent, which also means slow growing.

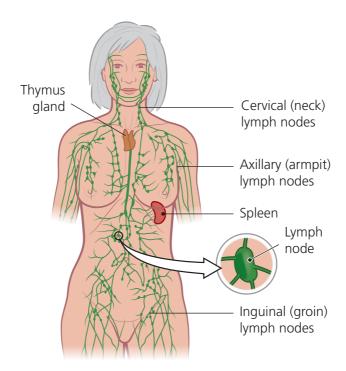
FL is a cancer that affects the **lymph nodes** of the **lymphatic system** and the most common symptoms of the disease are swollen glands in the neck, armpit, and groin. However, some people have no symptoms when they are diagnosed and will not need treatment at first.

People of any age can develop the disease, but most new diagnoses of FL are in people over the age of 60.

We cannot cure FL yet but it is a treatable condition, there are promising new therapies being developed, and it's usually possible to control the disease for long periods. Many people with FL have a normal lifespan and a good quality of life.

The lymphatic system

The lymphatic system is a network of vessels, nodes, organs, and tissues that is found throughout the whole body. It is part of the **immune system**. The lymphatic system carries a fluid called **lymph**, which contains the lymphocytes that help protect the body from infection and disease.



What are lymph nodes?

Lymph nodes are bean-shaped organs found throughout your body. They are connected by the lymphatic system and large numbers of them are clustered in the neck, armpits, groin, and abdomen.

The most important function of lymph nodes is to filter lymph of **pathogens** and abnormal cells. A pathogen is something that can cause disease, usually a virus or bacteria. Lymph nodes contain B cells, which can produce **antibodies** in response to **antigens**. Antibodies are a kind of protective protein while antigen is a general word for something foreign to the body. All pathogens are antigens, though antigens can also include other things that are not naturally present in your body such as toxins.

FL begins in a lymph node when B cells start dividing and growing uncontrollably because of genetic changes (see page 26). These abnormal cells don't die as normal B cells eventually do and they accumulate, forming a lump or clusters. This lump (or lumps) is usually painless and is often the first sign of FL.

Since lymphocytes circulate through the blood and lymph systems, FL cells are commonly found throughout the body including in the **bone marrow** and **spleen**.

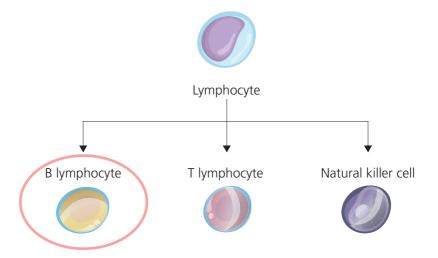
The spleen is the largest organ in the lymphatic system. It filters the blood and helps control the number of blood cells in the body. You can read more about bone marrow on page 6.

More about lymphocytes

Lymphocytes are a type of white blood cell. They play an important role in helping the **immune system** to fight infection and to manage inflammation.

There are three main types of lymphocyte:

- T lymphocytes
- B lymphocytes
- natural killer cells.
 FL is a cancer that involves the B lymphocytes.

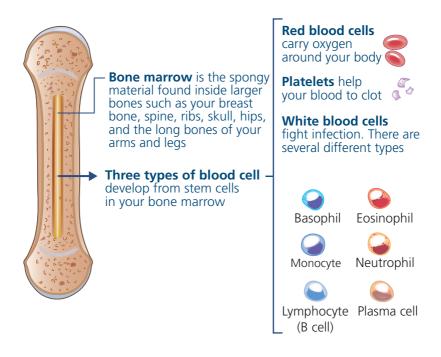


The B lymphocyte is one of the most important cells in the body. Its function is to make antibodies against infections. T lymphocytes also fight infection by destroying the viruses and bacteria that can cause infections, while natural killer cells can kill tumor cells or cells infected with a virus.

T lymphocytes and B lymphocytes are also called **T cells** and **B cells**, and this is how they will be referred to in this booklet.

What is the bone marrow?

The **bone marrow** is where all blood cells are made. It is a spongy material found inside our bones.



When FL spreads to the bone marrow and the spleen it can cause a number of problems, including:

- anemia leading to fatigue and breathlessness
- low platelets leading to blood clotting problems
- low neutrophils (a type of white blood cell) causing repeated infections. You can read more about how FL might affect you on pages 8–10.

Why did I get FL?

All cancers begin when changes (also called **mutations**) occur in the **genes** of a cell or cells. Genes carry instructions telling normal cells how to work properly. Mutations can change the instructions and cause the cells to become abnormal. A mutation can cause cells to multiply in an uncontrolled way. In FL, it is the genes of B cells that are affected.

Risk factors

Mutations associated with lymphoma occur in otherwise healthy people, especially as we get older, but we don't yet know what additional changes need to occur in the body for lymphoma to develop. Some risk factors include:

Age. FL is more commonly diagnosed in older adults.

Immune system. Certain infections, autoimmune disorders such as rheumatoid arthritis or lupus, or other conditions that affect the immune system may play a role in the development of FL.

Genetics. Some people may have an increased chance of developing a particular disease. This is called a **genetic predisposition**. Even if you have a genetic predisposition, it does not mean you will definitely develop the disease. It means you have a greater chance of developing it if it is triggered. A trigger can be any of the risk factors mentioned above.

How will FL affect me?

How FL develops in any one person is very individual and this booklet can only give general information about the disease. Some people can have no symptoms for many years. Other people will develop symptoms quickly or already have symptoms that require treatment when they are diagnosed. You can read more about the symptoms below.

You may experience some or none of these effects.

Signs and symptoms of FL

For many people, the first noticeable signs of FL are swellings in the lymph nodes in the neck, groin, or armpits. These are usually painless.



"I went to the GP because of my snoring – I was sleeping badly and he said 'oh your tonsils are very big – we'll take them out and you won't snore anymore.' After I had my tonsils out he called me back in and said a whole bunch of stuff but all I heard was the word 'lymphoma'."

Sometimes the swellings in the lymph nodes are deeper inside the body and may be noticed only when they start to cause discomfort. What symptoms you get will depend on where in the body the affected lymph nodes are. The discomfort or pain is caused by the swollen lymph nodes pressing against another organ in the body.

Symptoms may include:

- coughing or breathlessness
- discomfort in the chest
- feeling full or bloated or a loss of appetite
- skin rashes or itching.

B symptoms

Some people may experience symptoms known as **B symptoms**. These symptoms may only appear later as the cancer progresses. There are three B symptoms and they can occur separately or together.

- Night sweats. You wake up feeling 'wet with sweat' and often need to change the sheets, with no other signs of infections like cold or flu.
- Weight loss. Unintentional weight loss of more than 10% of body weight over 6 months.
- Fevers with no evidence of an infection.

Other symptoms

About 50% of people with FL have lymphoma cells in their bone marrow when they are diagnosed. When this happens, healthy blood cells are crowded out. This can lead to the symptoms described below.

Fatigue. Not having enough healthy red blood cells causes **anemia** and one of the symptoms of anemia is fatigue.

Feeling breathless is another symptom of anemia. Breathlessness happens because fewer red blood cells in your body results in less oxygen reaching your muscles.

Bleeding or bruising. An increase in nosebleeds or easy bruising can be caused by not having enough **platelets**. The medical term for this is **thrombocytopenia**. Platelets help to clot the blood.

Infections or difficulty getting over an infection.

• We talk more about this on pages 12–15.



IMPORTANT: When you have your regular checkups, be sure to tell your healthcare team about any symptom that seems new or different.

Will I need treatment immediately?

Many people with FL will not need any treatment at first. Doctors will usually 'actively monitor' for the disease in these people. This is also called 'watch and wait' or 'watchful waiting'. This period can last a number of years for some people. You can read more about active monitoring on page 32.

And for those people who do need treatment immediately, it's reassuring to know that therapies are continually evolving. FL may not be currently curable, but many people with FL can live well for a long time. You can read about treatment options on pages 44–52.



Managing infections

Whether you're receiving treatment or not, a person with FL does not have an immune system that is fully functioning. As a result, you will need to take certain precautions.

When you have FL, B cells don't work properly. This means that people with FL are much more likely to develop infections, and some of these infections can be serious. They will also have more difficulty fighting infections without the support of drugs like antibiotics.

Monitoring changes in the way you feel

It's important to tell your healthcare team immediately if you notice any changes in the way you feel. Signs of infection can be easy to miss and can come on very quickly. Possible signs of infection include:

- feeling more tired than usual and/or sleeping more
- feeling achy all over
- a change in your body temperature
- headache or sore throat
- feeling shivery or like you're coming down with flu
- diarrhea or vomiting.

Treating infections

Depending on the type of infection, your doctor can prescribe antibiotics, antivirals, or antifungals.

Preventing infections

Vaccination. Aside from basic preventative behavior like washing your hands and avoiding people who have an infection, vaccination can help reduce the chance of you picking up an infection.

It's important to be vaccinated against common infections and your doctor is likely to recommend that you have an annual flu vaccine and pneumonia vaccine.

Shingles vaccination. While the risk of developing shingles varies from patient to patient and depends on various factors such as your overall state of health, your age, and whether you have had shingles in the past, you may be advised to get the shingles vaccination. Shingles is a viral infection which you can get if you've had chickenpox in the past. It causes a painful skin rash and blisters.

There are generally two vaccines available for shingles: a live vaccine which contains a weakened chickenpox virus (varicella-zoster virus) and a non-live vaccination. People with FL (and anyone with a weakened immune system) should only have the **non-live vaccination**.

You should also avoid people who have shingles until they have fully recovered.

Immunoglobulin replacement therapy. Protection against infection can also be given by immunoglobulin (Ig) replacement therapy, which is a transfusion of antibodies from donated blood. Immunoglobulin is another word for antibody.

Ig replacement therapy can be helpful for people with low levels of antibodies and who have repeated and severe infections.

If your doctor thinks you will benefit from Ig replacement therapy, you can have it in one of two ways:

Intravenous immunoglobulin (IVIg) through a drip into a vein. It takes around 2–3 hours, though the first time it will be slower and take twice as long. People usually have IVIg every 3–4 weeks. This is an outpatient treatment.

Subcutaneous immunoglobulin (SCIg). A motorized pump delivers the treatment under your skin at a steady rate. It can go into your thigh, upper arm, or abdomen and takes around 2 hours. Treatment is weekly though for some people it will be more frequent. It can be done as an outpatient or in some cases at home.



IMPORTANT: Ig replacement therapy is a safe procedure and serious side effects are very rare. But if you feel unwell or are worried about any change in how you feel after the therapy, you should speak to your doctor or a member of your healthcare team immediately.

White blood cell growth factor. If you have prolonged low white blood cell counts (called **neutropenia**) after chemotherapy, your doctor may suggest a treatment called white blood cell growth factor. 'Growth factors' are proteins made in the body.

This treatment can increase the number of neutrophils made in the bone marrow. A neutrophil is a type of white blood cell which plays an important role in fighting infection.

You receive this treatment as an injection under your skin in a fleshy part of your body, like your stomach, thigh, or upper arm. You can find more information about this on some of the websites listed at the end of this booklet.

My notes		

Fatigue and FL

Fatigue is not tiredness: it is extreme tiredness that can mean even simple daily activities feel hard or even impossible to do. Some people with FL will experience fatigue as a symptom of the disease. Most people will experience it as a side effect of their FL treatment. Fatigue can be both physical and mental.

The cause of fatigue

Fatigue has many causes and it is not well understood. It can be caused by FL and its complications, such as anemia. It can also be caused by an infection such as a virus, or by stress and anxiety. Fatigue is also caused by cancer treatment itself: cancer-related fatigue is experienced by nearly all people with cancer who are undergoing treatment.

Treating fatigue

If you're feeling fatigued and are struggling to complete daily tasks, speak to your healthcare team. They will run some tests to try to understand the cause of your fatigue. Some causes, like a viral or bacterial infection, or more severe anemia, can be treated.

Blood transfusions can help to give you more red blood cells if you have severe anemia. Whether you are given a transfusion depends on several factors including your health and local practices. A blood transfusion can be done at an outpatient/day hospital.

Having a blood transfusion. Depending on the reason for the transfusion, you may receive a transfusion of a **blood component** which for FL could be red blood cells or platelets (or Ig, see page 14).



Blood components are carefully matched to your blood. Most people receive a blood transfusion without problems, but complications can sometimes occur.

If you have an appointment for a blood transfusion, you can find out more about the process from your healthcare team and on the FL dedicated websites listed on page 61.

Managing fatigue

There are things you can do to help reduce the impact of fatigue on your life, no matter what the cause.

Prioritizing activities. Not everything is a priority. Learning which tasks to focus on and which tasks to leave for another day – or delegate to someone else – can be an important strategy to manage fatigue.

Many people have more energy at certain parts of the day. Listening to your body and not attempting tiring tasks when your energy levels are low can also be very helpful. Conserving energy. It can be difficult to learn to manage the energy you have. Feeling energetic can sometimes drive people to do more than their body can manage, and more fatigue results. Even simple tasks can be tiring, so finding ways to conserve your energy can be very helpful.

Saying 'no' to family members who want you to socialize when you're not up to it, or not helping out with childcare as frequently as you used to, can be hard to do. Explaining how you physically feel, and why you feel like this, may help others to better understand.

Using exercise to reduce fatigue

One of the very best things to lessen the impact of fatigue is exercise. Many studies have shown that aerobic exercise – for example, walking, cycling, or swimming – for just 30 minutes three or four times a week brings enormous benefits for the body and the mind for people living with fatigue and cancer.

You can join a local gym, or go for a walk or a run outside. Exercise can be done at home if you have a stationary bicycle or treadmill, or want to do yoga or Pilates. Some blood cancer charities even have exercise videos on their websites.

Getting help to navigate your exercise options

If you need help planning your exercise sessions and need advice and guidance on what exercise to do and how often to do it, you may be able to see an **exercise physiologist**. Many exercise physiologists are experienced in working with people with cancer. An exercise physiologist can be especially helpful if you haven't exercised for a while and are out of condition.



IMPORTANT: If you are starting a new exercise regime, let your healthcare team know. This is particularly important if you have anemia and have concerns about what exercise may be safest for you.

When you have fatigue because of illness, there will be days when you cannot exercise. Go easy on yourself.

"The thought of going to a gym was just so boring for me. As a child, I did a lot of classical ballet and I just loved to dance but I also needed that resistance training as well, so I ended up taking up pole dancing! It was the best thing I ever did."

Complementary therapies

Complementary therapies and practices can be used to help manage the symptoms of FL, including fatigue. You can read more about these on pages 37 to 39.

Testing and FL

As a person with FL you will encounter different types of tests on your patient journey.

Some of these tests are used to diagnose the disease and you will have met them already. FL is typically diagnosed through a combination of methods, including physical examination, imaging studies, biopsy, and other laboratory tests.

Other tests are used to understand the development of the disease (also called disease **progression**). Some tests are used to decide on the best kind of therapy for you or to understand if a therapy will be beneficial.

Understanding what these tests are and when they are used can help you feel confident when discussing your condition with your healthcare team.

Lymph node biopsy

The main diagnostic method for FL is a **biopsy** of affected lymph nodes. A biopsy is when a medical professional removes a small piece of tissue or cells from your body for examination under a microscope in a laboratory. In FL, the cancerous cells typically form a pattern that resembles normal lymph node architecture, with clearly defined 'follicles' or nodules. These can be seen under a microscope.

You might also have a biopsy if there are signs of progression or **transformation** of the disease. Transformation in lymphoma refers to the process where a less aggressive form of lymphoma changes into a more aggressive form. Aggressive in this context means fast growing.

Signs can include lymph nodes growing rapidly, new symptoms, or changes in your blood test.

More about lymph node biopsy

There are two different kinds of biopsy method used for diagnosing and monitoring FL.

Excision biopsy. During an excision biopsy, a doctor makes a small cut in your skin and removes a lymph node. You have a couple of stitches to close the cut. You will usually have **local anesthetic**, to make you more comfortable.

Core needle biopsy. In this kind of biopsy, a sample of cells rather than the entire lymph node is removed using a needle. You will usually have **local anesthetic** or sometimes a **general anesthetic** (this means you will be asleep during the procedure).

If the affected lymph node is deeper in your body, the doctor – usually a **radiologist** – may do the biopsy with the help of **medical imaging**, usually a **CT scan** or an **ultrasound scan**. Medical imaging is used to help the doctor guide the needle.

The Follicular Lymphoma Foundation and other patient advocacy groups we list at the back of this book have more details about biopsy, what to expect, and how to prepare for it.

Blood tests

As a person with FL, you will have regular blood tests to monitor your general health. A blood test is generally a **full blood count (FBC)** (sometimes called a **complete blood count [CBC]**) or a test of chemicals and proteins in the blood, called either **urea and electrolytes (U&E)** or **blood chemistry panel (CMP)**.

Full blood count. An FBC measures how many blood cells you have in your blood and the numbers of the different types of blood cell. FL is rarely detected in an FBC but this kind of test can help your doctor understand if there is any systemic involvement. This means whether other organs in your body like your spleen are also affected or whether the bone marrow is affected (see page 6).



IMPORTANT: The FBC is an important test when you are an FL patient but keep in mind that changes in blood cell counts have many causes including infections, other illnesses, having surgery, or medications. Not every change is necessarily significant or relevant to FL.

Blood chemistry (U&E, CMP). These tests check your kidney and liver function, electrolytes (salts in the blood: sodium, potassium, calcium), and your blood sugar. On your test results you may see the letters U&E which stand for urea and electrolytes and CMP which is 'complete metabolic panel'.

Other blood tests. Two other substances that your blood may be tested for are lactate dehydrogenase (LDH) and beta-2 microglobulin.

LDH is an enzyme found in the cells of our body. Cancer cells release large amounts of LDH and so it can be used to understand the development of your cancer or to see how well treatment is working. LDH is also an important marker of concern for **transformation** (see page 52). A tumor marker is made by cancer cells or by normal cells responding to the presence of cancer in the body.

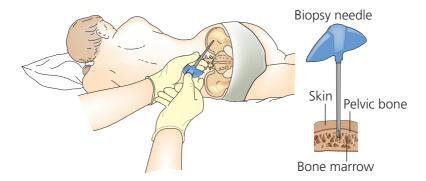
Beta-2 microglobulin is also a tumor marker. It can provide information about how much cancer you have in your body at diagnosis. Unlike in other cancers, beta-2 microglobulin is less useful in FL for deciding on treatment or assessing whether treatment is working.

My questions	

Bone marrow tests

Sometimes your doctor may want to do **bone marrow tests** as well as a blood test. Bone marrow tests can give more information about the progression of the cancer. These tests might be repeated during or after treatment, too.

There are two different procedures used to get samples for testing but both are usually done at the same time.



Bone marrow aspirate is when some liquid from the bone marrow is taken out using a syringe. This liquid contains the cells of the bone marrow.

Bone marrow biopsy takes out a very small piece of bone marrow in one piece. This can give information about the structure of the bone marrow.

Will I feel anything? The procedure can be uncomfortable or even painful for some people and your hip may ache or be bruised for a few days afterwards. Some people feel just a sensation of pulling. Local anesthetic is used to numb the area. Sometimes sedation is used to make you more relaxed. Both procedures are usually done as an outpatient (day hospital) so you can go home afterwards.

Imaging tests

Imaging tests help your healthcare team understand more about the **extent** and the **stage** of your FL. Extent means the size of the cancer and/or how far it has spread from the original site. Stage means how advanced the cancer is. Your healthcare team will also **grade** the lymphoma. This involves measuring the proportion of enlarged B cells. You can read more about staging and grading on pages 27–31.

Computed tomography (CT) scan. This imaging test gives detailed pictures of the body and is used to check for swollen lymph nodes or other affected areas.

Positron emission tomography (PET) scan. This scan is often combined with a CT scan and called PET/CT. It is very sensitive and can help to identify active areas of lymphoma throughout your body.

Testing for gene changes

Tests can be done to look for gene changes (**mutations**) in cells. These genetic tests help your doctor understand more about your outlook and make decisions about your treatment.

These mutations can mean you have a greater chance of your FL progressing and needing treatment.

One gene test uses a technique called **FISH** (fluorescence in situ hybridization). This test is sometimes called a cytogenetic test or molecular analysis. The FISH test is used to look for specific changes in the **chromosomes** or **DNA** of a cell. It generally uses a blood sample or bone marrow sample.

Genetic testing is a very complex area and much remains to be discovered. Some of the more common genetic changes that can happen in FL include:

- translocation between chromosome 14 and chromosome 18. Translocation means that a part of one chromosome breaks off and attaches to another. This is the most common genetic change in FL
- mutations in the EZH2 gene
- mutations in the CREBBP and EP300 genes
- mutations in TNFRSF14 gene.

Unlike some other blood cancers, the gene mutations associated with FL are not thought to be hereditary. This means you cannot pass the mutations on to your children and your parents did not pass the mutations on to you.

After diagnosis: what next? Staging

When you receive a diagnosis of FL, your doctors will **stage** the cancer. Staging is a description of where the cancer is, if and where it has spread, and what other parts of the body are affected. This information comes from some of the tests you have read about in the previous section.

Knowing the stage of the cancer is vital in helping your healthcare team decide whether to begin treatment and what treatment may be beneficial for you.



IMPORTANT: Staging was developed for Hodgkin lymphoma and is less useful for FL. Many people with FL are diagnosed when their cancer is Stage 3 or 4. This is probably because FL is slow growing, and many people are not aware of any symptoms for many years. Also, B cells circulate normally in blood and lymph, and FL cells do the same.

Grading FL

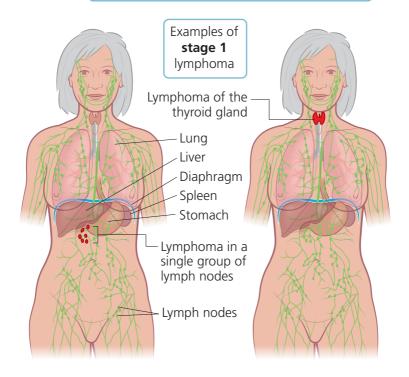
As well as staging, your doctors will also **grade** the lymphoma. Grading is another way of measuring how advanced the lymphoma is.

This is done by examining the number of centroblasts in your blood. Centroblasts is another name for enlarged B cells.

FL is given a grade from 1 to 3, with 1 being low grade and 3 high grade. Grade 3 can be divided into 3A and 3B.

This means that you have **one** of the following:

- Lymphoma in a single lymph node or one group of lymph nodes, or an organ of the lymphatic system (such as the thyroid gland)
- Lymphoma in an extranodal site (1E)



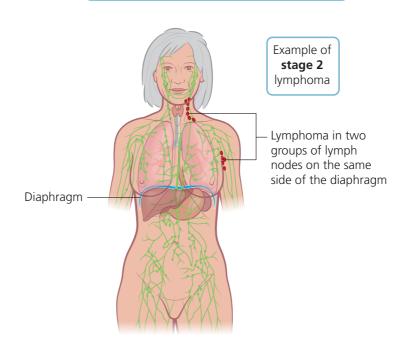
Stage 1 lymphoma in a single group of lymph nodes below the diaphragm

Stage 1 lymphoma in the thyroid gland

This means that you have **one** of the following:

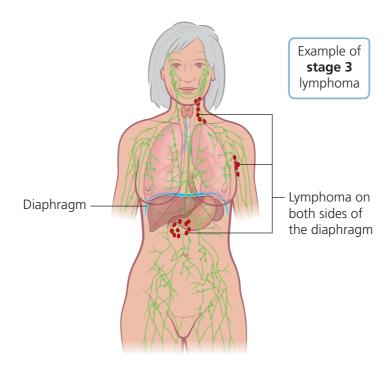
- Your lymphoma is in two or more groups of lymph nodes
- Your lymphoma is in an extranodal site and one or more groups of lymph nodes (2E)

In both cases, the two sites of lymphoma are on the **same side** of the diaphragm



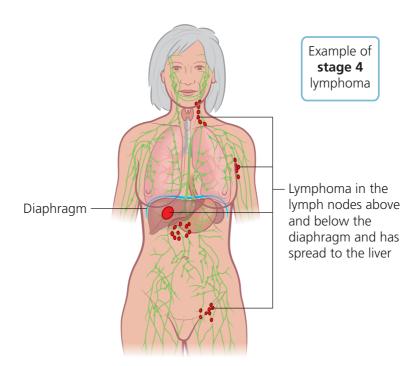
This means that you have lymphoma on **both** sides of the diaphragm:

- One example (below) is that the lymphoma is in lymph nodes on both sides of the diaphragm
- Another example is that the lymphoma is in lymph nodes above the diaphragm, as well as in the spleen below the diaphragm



This means that you have **one** of the following:

- Your lymphoma is in an extranodal site as well as in the lymph nodes
- Your lymphoma is in more than one extranodal site, for example the liver and bones or lungs



Active monitoring (watch and wait)

What is active monitoring?

Some people diagnosed with FL will not receive treatment at first but will be on active monitoring. Active monitoring usually means seeing your primary care practitioner/general practitioner or hematologist every 3–6 months. They will run a number of tests, including your blood count, and monitor for any changes in your symptoms.

Active monitoring is also called 'watch and wait' or 'watchful waiting'. This period can last for months or it can last for years.

Why am I on active monitoring?

Active monitoring may be proposed if your FL is not causing significant symptoms and is progressing slowly, and may be proposed even for lymphomas at Stage 3 or 4. This is particularly relevant for older patients or those with other significant health issues where the risks of treatment might outweigh the benefits.

The decision not to treat also depends on a patient's overall health, age, symptoms, and preferences.

Managing active monitoring

Being told you have lymphoma and it can't be cured but you won't be receiving any immediate treatment will very likely be hard for you and your family to understand.

Some people with FL call this period 'watch and worry' for this reason.

But it's important to remember that there is no benefit to having treatment when it isn't needed. In fact, there is strong evidence that starting treatment early doesn't change the progression of FL. Treatments for FL usually have side effects so having treatment when you don't need it will affect your quality of life.

If you want to understand more about why you are not receiving treatment, ask your primary care practitioner or your specialist healthcare team (see page 34). They will be happy to talk to you about it.

Finding support

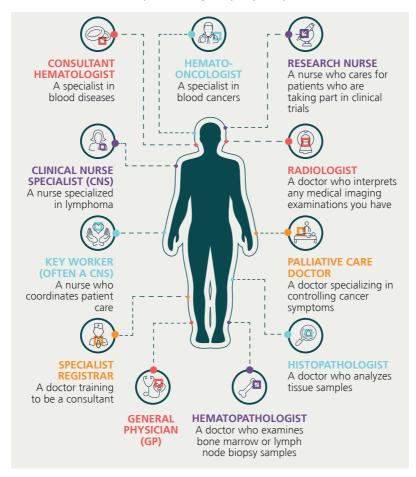
When you are on active monitoring, finding someone to talk to, and hearing from other people with FL, can be a huge benefit.

Patient advocacy groups and patient organizations can be a great source of valuable information and support. You'll find a list at the back of this booklet. There may well be local groups in your region that organize meetings or online events.

It is important to look after your own emotional and mental well-being in this period. You'll find helpful tips about this on page 40.

YOUR HEALTHCARE TEAM

Your diagnosis and care is likely to involve a full team of medical professionals, all centered around **YOU** and the needs you may have throughout your journey.



You may also receive care and treatment from these 'allied healthcare professionals'.



Living with FL

While each person's experience of FL will be individual, a good diet, physical exercise, and stress relief will benefit everybody. This is true if you are on active monitoring or if you're receiving treatment. Patient groups and FL organizations often have excellent information about supportive treatments.

Diet

Eating a nutritious diet will help increase your energy levels and support your recovery from any treatment.

The best kind of diet for people with cancer seems to be an **anti-inflammatory** diet. This is a diet that includes lots of fruit and vegetables along with so-called 'healthy fats' like avocado, chicken, and fish like salmon and mackerel. For meat eaters, some red meat is also fine. This kind of diet has been shown to reduce **inflammation** in your body.



IMPORTANT: Inflammation is the body's response to injury or infection. When inflammation is chronic (long lasting) it can increase the risk of cancer, encourage the growth of tumors, and also promote the spread of the cancer.

You should avoid ultra-processed foods, salty and sugary snacks, soft drinks, and fast foods as these also cause inflammation, as does alcohol. If you enjoy alcohol, restricting it to a couple of drinks a week is advisable.

Getting help

For many people however, changing what you normally eat can be hard. This is especially challenging if you're responsible for preparing food for other people, such as your family. You may not enjoy fish or live far from a supermarket with a good selection of vegetables. Some people have little experience of cooking 'from scratch'.

Diet and treatment. If you're having chemotherapy, you may find it hard to eat regular meals as the side effects of the treatment may make eating difficult. You may lose your appetite or have nausea. You may find that the taste of food has changed and things you used to enjoy are no longer appetizing.

It can be a good idea to ask for advice and help with your diet in this period. A dietitian working with your healthcare team should be able to advise you, but you may need to be proactive and make a point of asking. If your healthcare team cannot help you, the patient associations and advocacy groups we list at the back of this book and the Facebook group Living with Follicular Lymphoma can be a good source of information.

Vitamin supplementation. You may also need to supplement your diet with vitamins, particularly when you're undergoing treatment, or your diet is reduced due to treatment side effects. Some vitamins may interact with some therapies however, so tell your healthcare team exactly what you're taking and they can advise you. A clinical nutritionist can also test you for any nutritional deficiencies.

Some of the patients we spoke to in developing this booklet said that ongoing support from a clinical nutritionist after receiving treatment was extremely helpful.

"I found the nutrition aspect quite challenging after treatment – I felt scared to eat many things. I think ongoing support from a clinical nutritionist could help improve health outcomes for patients, including mental health status."

Complementary therapies

Complementary therapies are often used by people with cancer alongside conventional treatment to help reduce stress, fatigue, and the impact of any treatment. You may hear complementary therapies referred to as 'alternative' therapies, or 'holistic' therapies.

Practices that people with FL use to manage their illness include **yoga**, **tai chi**, **Pilates**, and **meditation** while therapies include **massage**, **reflexology**, **acupuncture**, and **aromatherapy**. Patient groups will often have information about other complementary therapies that people find useful.

Yoga. There are different aspects to yoga – physical, breathing, and meditation to name three – and many different styles of yoga. All can help energize the body and offer relief from fatigue, pain, stress, and anxiety. Yoga can be done in a class or at home – there are many online yoga teachers offering free or low-cost classes.

Pilates. A form of low-impact exercise, similar to yoga, that focuses on balance, posture, strength, and flexibility.

Tai chi is a traditional Chinese martial art that combines slow movements with deep breathing and mental focus. It is an energizing practice that can be done in a class or at home. Studies show that, like yoga, tai chi can help with pain relief, fatigue, sleep problems, and depression.

Massage and reflexology. Massage increases blood flow around the body and can ease pain and discomfort and help you feel relaxed. Reflexology works on pressure points in your feet or sometimes your hands. It can also promote a deep feeling of relaxation. Both are generally safe for people with FL, but we recommend that you use a practitioner who specializes in people with cancer.



IMPORTANT: Deep tissue massage involves applying firm pressure and slow strokes to reach deeper layers of muscle and fascia. It can be unsuitable for people with FL or other lymphomas. Check with your healthcare team.

Acupuncture uses needles to stimulate pressure points around the body. Electroacupuncture is also used. Studies have shown that both types of acupuncture can give relief from pain, from vomiting and nausea associated with cancer treatments, and from fatigue. For some people with a low platelet count, acupuncture may not be suitable.





IMPORTANT: If you have acupuncture, always use a registered acupuncturist and preferably someone with experience of working with people with cancer. And always speak to your healthcare team before starting a program of any complementary therapy.

Exercise. Regular exercise has a very positive effect on the body and the mind. Exercise is important at all stages, both pre- and, especially, post-treatment. For more about how to exercise when you have fatigue, see pages 18 to 19.

Sleep. Getting adequate sleep – between 7 and 9 hours a night is also very important, especially during treatment.

"It's not just about food. It's also physical activity.

It's [reducing] stress, getting outside into the sun.

And sleep. Sleep is so important, so it's really holistic."

My notes		

Psychological support

A diagnosis of cancer can be an enormous shock. Some people say they feel numb with shock. Thoughts and worries about family, relationships, work, finances, and lifestyle can crowd in. The stress of a diagnosis and treatment or the anxiety associated with being on active monitoring can lead to sleep problems and problems with relationships. If these feelings develop, they can lead to depression.

Finding support at this difficult time can help you, your partner, and close family.

"Everybody fears the same thing when they're first diagnosed with cancer but there is a life to lead following diagnosis and you can get through it."



Talking to family and friends

Talking about your health with family and friends may be uncomfortable and difficult for you, but sharing what you know about your condition, and sharing your concerns and how you feel with your family and friends may help them to cope and to better support you. You may prefer not to talk to everyone in your family or not to tell everyone at the same time. It's entirely your choice who you tell, what you tell them, and when you tell them.

Outside the family

You may prefer to talk to someone outside of your family about your concerns, such as your specialist nurse, primary care practitioner, or a religious or spiritual leader. If you prefer to talk to someone you don't know, but who understands what you are going through, your healthcare team may be able to refer you to a counselor. Some cancer charities offer free telephone or online support, too.

"You can be surrounded by the most supportive family in the world, but I still felt completely alone after I was diagnosed and nobody understood what I was going through. So that would be my advice: find other FL patients to connect with."

Find others in a similar situation

Finding others in a similar situation to you can be an important source of psychological support. Your specialist nurse may know of local support or patient advocacy groups that you can go to. While these groups may not be specific to FL, they can be a huge help for some people.

With online forums and patient groups, finding other people with the same condition as you is easier than it used to be. A lot of people prefer to make contact online because it's anonymous. There are some details at the back of this booklet about support organizations for FL you may find helpful, including the Facebook group Living with Follicular Lymphoma.

"What's great about the FL Facebook group is that you're in touch with all these people – 11,000 people who all have a common interest, a common goal, and they're all willing to share their experiences."

Effects on professional life and finances

You are not obliged to tell anyone at work about your diagnosis of FL. However, there are laws in many countries to protect your rights at work and for this reason alone, it is a good idea to contact your personnel department as soon as you can. If your employer knows about your diagnosis, they can make what are sometimes called 'reasonable adjustments'. This means allowing you to take time off work for hospital appointments, to alter your working hours, or to adapt your job description.

For more specific advice related to work, check with advocacy groups and support networks in your own country or on a social media forum such as Living with Follicular Lymphoma on Facebook. With 11,000 members and rising, you may well find someone with the specific information you're looking for.

Travel

You can travel when you have FL but it's sensible to be mindful about how you travel and where you go. Airplanes are not recommended for people who are prone to infections, for example. Being within easy access of medical care is important, as is preserving your reserves of energy. You will need to inform your existing travel insurer (if you have one) or take out a new policy. Not all insurers will cover you for countries where medical care is especially expensive.

Patient advocacy groups often have updated advice on travel insurance and how to travel safely and comfortably with FL.

Starting treatment

If the time comes to start treatment, the treatment you have will depend on several aspects. These aspects include your age and level of fitness, how the cancer has progressed, genetic test results, any previous treatment for FL, and any other health conditions you have. They also include where in the world you live.

The aims of treatment

Disease control. The aim of treatment for many people with FL is to control the spread of the lymphoma and to maintain the cancer in a state where it does not develop or cause serious symptoms.

The objective of treatment for many people is to achieve a **partial** or **complete response** to treatment, where the signs of cancer are reduced or disappear. This state is called **remission**. When there are no signs of disease, in some countries the phrase 'no evidence of disease' (NED) is used.

Symptom management. For many patients, especially those with advanced-stage FL, the goal is to manage symptoms and improve quality of life. This might include reducing the size of lymph nodes, alleviating pain, and addressing other symptoms like fatigue or night sweats.

Prolonging survival. Treatments aim to extend the patient's life while maintaining a good quality of life. FL is a disease that many people live with for many years, so balancing treatment effectiveness with side effects, which can affect quality of life, is crucial.

Active monitoring (see page 32).

Preventing complications. Part of the treatment may involve preventing or managing complications, such as infections or the transformation of the lymphoma into a more aggressive form.

Relapse

Unfortunately, symptoms of FL can return after successful treatment. This is called **relapse**.

In fact, FL has a high rate of relapse, and it can be common for patients to experience multiple remissions and relapses over the course of their disease. Because of the high likelihood of relapse, people with FL are closely monitored after the first treatment. You will have regular follow-ups, blood tests, and scans.

Some patients may experience a relapse within a few years of treatment, while others may remain in remission for many years. The duration of the first remission can be an important predictor of the overall disease course.

Signs that your cancer may be relapsing

Your healthcare team should tell you what signs and symptoms may suggest your FL is relapsing. You may have similar symptoms as you did originally. Developing B symptoms (extreme/worsening fatigue, drenching night sweats, and unexplained weight loss) is also sign that your FL may be relapsing.

What if my cancer comes back?

It can be very difficult to learn that your cancer has returned. But it is important to remember that you will receive treatment, and treatment options are improving continually. Newer therapies and treatment approaches have had a big effect on how many people achieve remission and how long they stay in remission. These developments in treatment options may also influence relapse rates.

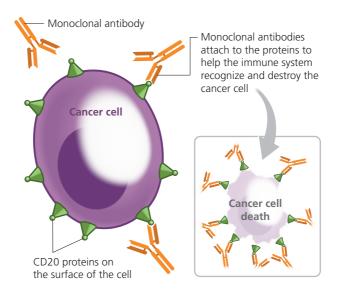
You can read more about treatment options below.

Treatment options

Treatment for FL is generally **targeted therapies** with or without **chemotherapy**. Many people will receive a combination of both. A very small number of people may be offered a **stem cell transplant**.

Targeted therapies work by 'targeting' the proteins that cause cancer cells to grow and divide. Most targeted therapies are small-molecule drugs or monoclonal antibodies.

- Small-molecule drugs are small enough to enter cancer cells and target enzymes inside the cells. They are also called inhibitors.
- Monoclonal antibodies work by targeting proteins found on the cancer cells. One of the most widely used monoclonal antibodies targets a protein called CD20 that is found on the surface of B-cell lymphoma cells. This helps the immune system recognize the cells and destroy them. Monoclonal antibodies are often used in combination with chemotherapy.



Chemoimmunotherapy, immunotherapy, and chemotherapy are all types of systemic therapy. This means that they circulate through your bloodstream to treat cancer wherever it is in your body.

More about inhibitors

Inhibitors are one kind of targeted therapy. There are three different classes of inhibitors. They work differently, and they target different pathways in the cell. This means that when your FL becomes resistant to one of them, it may still respond to the others.

Chemotherapy

Chemotherapy works by killing cells that multiply rapidly. This includes cancer cells.

These days, it is very unusual for chemotherapy to be used by itself to treat FL. It is usually used in combination with a monoclonal antibody. This combination treatment is called **chemoimmunotherapy**.

Current FL treatments

Different therapies are used depending on the country in which you live. Combination therapy is most common though sometimes a monoclonal antibody will be used alone (monotherapy).

Radiation therapy. For very localized lymphoma (Stage 1 or some Stage 2), radiation therapy alone can be a treatment option. Many people with FL are diagnosed when the lymphoma is already at Stage 3 or 4, so radiation therapy is not likely to be offered.

Newer immunotherapy

A new therapy is available in some countries which involves 'reprogramming' the patient's own T cells (see page 5) in a lab. It is approved in the USA and the European Union for cases of relapsed or refractory FL but not currently in the UK. Refractory means the lymphoma has not responded to standard treatment.

Bispecific antibodies are molecules that can activate T cells and kill cancerous B cells. A bispecific antibody is approved for use in the USA and the European Union for patients with relapsed or refractory FL.

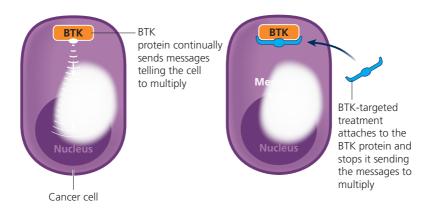
More about treatment

The information in this book was correct when it was published. Drug combinations that are approved will change as more trials are conducted. You will find more detailed and current information about FL treatment and therapy combinations on the patient resource websites that are listed at the end of this book.

Other treatments for relapsed or refractory FL

BTK inhibitors. As explained on page 46, there are other types of targeted therapies available that can treat relapsed FL, and more are under development. For example, there are drugs that target a protein called Bruton's tyrosine kinase (BTK). BTK is involved in sending signals to a cell to make it divide and it plays a key role in B cell growth.

BTK inhibitors are drugs that can block the signals sent by BTK and so can stop cells dividing. A treatment combining a BTK inhibitor with a monoclonal antibody is approved for use in the European Union and some other regions of the world to treat relapsing FL.



Common side effects of treatment

Treatment	Possible side effects
Radiation therapy	 Fatigue Diarrhea Nausea (feeling sick) and/or vomiting Soreness of the skin over the area treated
Chemotherapy (side effects can vary with the drugs used and the doses given)	 Fatigue Nausea Diarrhea Hair thinning/hair loss Increased risk of infection Anemia Thrombocytopenia (see page 10)
Antibody therapy	 While receiving treatment, flu-like symptoms, breathlessness, and rash Increased risk of infection Anemia Thrombocytopenia Headache or dizziness Muscle or joint pain Nausea
Immunomodulatory therapy (approved for use in some countries in people with refractory or relapsed FL. Used alone or in combination with a monoclonal antibody)	 Neutropenia (see page 15) Fatigue Rash Thrombosis
BTK Inhibitor/ monoclonal antibody combo	Cough and flu-like symptomsBreathlessnessIncreased risk of infectionConfusion

Transformation

Transformation is when your lymphoma changes into a more aggressive form, often **diffuse large B-cell lymphoma** (**DLBCL**). 'Aggressive' means fast growing. Not all patients with FL will experience transformation, but it is a known complication.

People with FL will have regular checks so any signs of transformation can be found early. Make sure you tell your healthcare team if you notice any new symptoms such as rapid growth of lymph nodes or B symptoms like fever, night sweats, or unexpected weight loss.

Treatment for transformed FL usually involves more intensive chemotherapy regimens, similar to those used for treating a new case of DLBCL.

Side effects of treatment

Some of the most common side effects associated with the main forms of treatment for FL are shown in the table on page 51. For each type of treatment, you are unlikely to experience all of the side effects. You may experience a few of them, or you may not have any at all.

If you are troubled by side effects, make a note of them, and tell your healthcare team about them.



Questions for your doctor

Questions for your doctor about your treatment for FL may include:

What is the aim of this treatment?

How and when will I have this treatment?

For how long will I have the treatment?

Can I continue to take other prescribed drugs?

Can I continue to take vitamins and minerals?

What should I do if I am sick after receiving a dose?

What are the most common side effects?

What can I do to manage the side effects?

How will you monitor me when I am on the treatment?

How do we know that the treatment is working?

What are the risks of this treatment in light of my overall health and age?

How do the outcome and side effects of this treatment compare to other treatments for FL?

Can I exercise while on treatment?

With what problems should I contact my lymphoma team?

With what problems should I contact my primary care doctor (GP)?

Stem cell transplant

A stem cell transplant is not common as a treatment for FL and is generally only suggested for younger, fitter patients. It may be offered if FL transforms to DLBCL (see page 52). Because a stem cell transplant is uncommon in people with FL and is not offered to many patients, we haven't included any details about the process here. You can find information about the procedure on many of the resource websites listed at the end of this book.

New developments in treatment

If you are interested in new treatments, you may want to ask your doctor about clinical trials.

A new treatment must go through several phases of testing before it can be proven to work better than, or as well as, existing treatment and be adopted into routine care. 'Adopted into routine care' means it can be prescribed as treatment for the condition it was tested for. A potential treatment will only move on to the next phase of research if it is safe and shows promise.

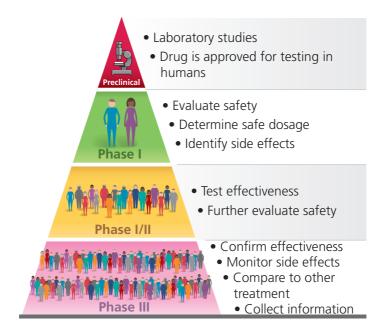
Clinical trial phases

Phase I. The first stage is to make sure a new treatment is safe. These trials are usually small, with only a few people in each one.

Phase II. These trials are larger. In a Phase II trial, the safety of the potential new treatment continues to be evaluated. The drug is also evaluated to see if it will be effective for a particular medical condition.

Phase III. These trials test the new treatment against the standard existing treatment to see which works best. These are the largest trials and are often international, particularly for rare conditions. Phase III trials are usually **randomized**.

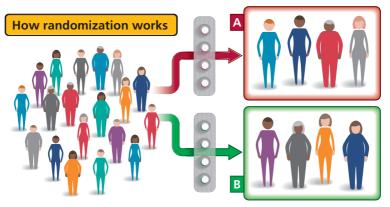
Phase IV. These are 'real world' data collections which take place after the drug has been approved and is being prescribed.



Randomization in clinical trials

Randomization helps researchers be sure that the effects they see during a clinical trial are the result of the treatment being tested and not the result of differences between groups of people. In randomized trials, the people taking part are split into at least two groups. This is usually done by computer and aims to ensure that the groups are as similar as possible. Neither you nor the researchers can choose which group you are allocated to and you may never know which group you were in.

One group of people will be given the new treatment while people in the other group will receive the existing treatment. This means that your care will not be adversely affected by taking part in the trial.



Details of everyone taking part in the trial are entered into a computer

The computer program takes into account details such as age and stage of cancer to make sure the groups are as similar as possible

Finding out about clinical trials

The easiest way of finding out about clinical trials is to check on patient advocacy sites such as the Follicular Lymphoma Foundation. The website address is listed in 'Useful resources' at the back of this book. Depending on where you are receiving your medical care, your doctor may also be able to tell you about a trial and whether it is suitable for you.

There are also some online databases that you can search to find out about clinical trials. However, you need to keep in mind that these databases are mainly aimed at researchers and doctors, so they may be difficult to understand. Databases of clinical trials can be found at:

- clinicaltrials.gov
- clinicaltrialsregister.eu
- eortc.org/clinical-trials-database

The first database is run by the US National Library of Medicine and contains information about clinical trials running worldwide. The second database contains details of clinical trials that have been approved in the European Union or European Economic Area. The final database is hosted by the European Organisation for Research and Treatment of Cancer (EORTC). EORTC runs clinical trials covering all types of cancer. Its database contains information about its own clinical trials but also about clinical trials run by other organizations that it is, or has been, involved in.

My questions

Here are some suggestions for questions that you might want to ask your doctor about taking part in a clinical trial.

Are there any trials I could enter that are for my type and stage of cancer?

What treatment can you offer if I decide not to enter a trial?

What do the researchers hope to find out from this trial?

What are the possible advantages and risks of taking part?

Is the trial randomized?

What will I have to do if I join the trial? What tests and check-ups will I need?

Can I have tests and treatment at my usual treatment center or will I have to travel?

Is there any help available to cover costs?

Will joining a trial mean that there are any medicines or treatments that I can't have?

Is the trial insured?

Will taking part in a trial affect my medical insurance?

Guide to words and phrases

Active monitoring: closely monitoring a patient's condition but not giving treatment unless symptoms appear or change. Other terms for active monitoring are watchful waiting and watch and wait.

Antibody: a protein made by white blood cells in response to an antigen.

Antigen: anything that comes from outside of the body, e.g., a toxin, virus, or bacterium, and which causes the body's immune system to respond.

Asymptomatic: no symptoms, feeling well.

B lymphocyte/B cell: a type of white blood cell that makes antibodies.

Bispecific antibodies: molecules that can activate T cells and kill cancerous B cells.

Biopsy: when cells or tissue are taken from your body for examination.

Bone marrow: the soft, spongy tissue found in the center of most bones and where blood cells are made.

CAR-T: chimeric antigen receptor (CAR) T-cell therapies. A type of immunotherapy involving T cells.

Chemoimmunotherapy: a treatment that involves both chemotherapy and immunotherapy.

Chemotherapy: a treatment that kills cancer cells or stops them from dividing.

Chronic: describes something like an infection, disease, or pain that continues or gets worse over a long time.

Fatigue: extreme tiredness, both physical and mental.

First-line treatment/therapy: the first treatment received for a disease. Also called primary treatment/therapy.

FISH: a lab test that looks at genes in samples of tissue or cells. Used to diagnose and plan FL and other cancer treatment. Also called fluorescence in situ hybridization.

Immunoglobulin:a type of protein made by B cells and plasma cells that acts as an antibody. Found in serum and other body fluids such as urine and spinal fluid, and tissues such as lymph nodes and spleen.

Immunohistochemistry: a kind of laboratory test to check for antigens in a sample of tissue. The test is used to detect cancer and to differentiate between different cancers.

Immunomodulator: a broad term to describe any drug that modulates or alters the immune system's response.

Inhibitors: inhibitors are targeted drugs which block the signals that make cells grow.

Lymphatic system: a large network of vessels, organs, and nodes that carries a clear fluid called lymph, which contains white blood cells and antibodies.

Lymphocyte: a type of white blood cell.

Lymphoid tissue: part of the lymphatic system and present throughout the body. It includes lymph nodes, spleen, tonsils, adenoids, and other structures.

Monoclonal antibody: a single type of antibody that is made in large quantities in a laboratory and used as a medical treatment.

Mutation: any change in the DNA sequence of a cell.

Neutrophil: a type of white blood cell.

Pathogen: a virus, bacterium, or other microorganism that can cause disease.

Plasma: the liquid portion of blood.

Platelets: cell fragments in your blood and spleen that help your blood to clot. Whole blood consists of plasma, red and white blood cells, and platelets.

Progression: describes the worsening of a disease over time.

Red blood cells: a type of blood cell that contains hemoglobin which carries oxygen from the lungs to the rest of the body. Relapse: the return of a disease or the signs and symptoms of a disease after previously improving.

Remission: a decrease in or disappearance of signs and symptoms of cancer. In partial remission, some, but not all, signs and symptoms of cancer have disappeared. In complete remission, all signs and symptoms of cancer have disappeared, although cancer still may be in the body.

Second-line treatment/therapy: treatment used against a disease after the first choice of treatment has failed or no longer works.

Small-molecule drugs: anticancer drugs that inhibit certain proteins in cancer cells

Staging: tests and examinations to find out if the cancer has spread and to what extent.

Stem cell: a cell from which other types of cells develop. For example, blood cells develop from bloodforming stem cells.

Targeted therapy: a type of treatment that uses drugs or other substances – usually monoclonal antibodies or small-molecule drugs – to target specific molecules that cancer cells need to survive and spread.

Watch and wait: another name for active monitoring.



Useful resources

Follicular Lymphoma Foundation theflf.org

American Cancer Society cancer.org

National Cancer Institute Dictionary of Cancer Terms cancer.gov/publications/dictionaries/cancer-terms/

Blood Cancer UK bloodcancer.org.uk

Cancer Research UK cancerresearchuk.org

Leukemia & Lymphoma Society lls.org

Lymphoma Action lymphoma-action.org.uk

Macmillan Cancer Support macmillan.org.uk

Facebook Groups Living with Follicular Lymphoma www.facebook.com/groups/flsupport

Fast Facts for Patients



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Ouestions for the Editor

How has this book helped you? Is there anything you didn't understand?

Do you still have unanswered questions?

Please send your questions, or any other comments, to fastfacts@karger.com and help readers of future editions. Thank you!



HEALTHCARE

HEALTHCARE



Oncology

Fast Facts for Patients

Follicular Lymphoma

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