

Burkitt lymphoma

Burkitt lymphoma is a fast-growing form of blood cancer that can affect adults and children. This fact sheet explains what Burkitt lymphoma is, how it's diagnosed and treated in adults, and where to go for more support.



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What is Burkitt lymphoma?

Burkitt lymphoma is a rare type of non-Hodgkin lymphoma (NHL), which is a type of blood cancer. You might hear it called a 'high-grade' non-Hodgkin lymphoma – this means it's fast-growing.

You could read this fact sheet alongside our **High-grade non-Hodgkin lymphoma** booklet. To order or download a copy, visit **bloodcancer.org.uk/information**

If you have Burkitt lymphoma, a type of white blood cell called a B-lymphocyte is affected. These cells form part of your body's immune system, which protects you from infection. They are made in your bone marrow (the soft, spongy substance found inside some of your bones).

In people with Burkitt lymphoma, the body starts to produce B-lymphocytes that don't work as they should do. These abnormal cells can:

- build up in your body and form one or more lumps
- fill your bone marrow and stop it from working well.

Who gets Burkitt lymphoma?

Every year, around 250 people are diagnosed with Burkitt lymphoma in the UK. It affects children and adults, and is more common in men than women.

This information is about Burkitt lymphoma in adults. To find out about Burkitt lymphoma in children, go to **lymphoma-action.org.uk** and search for 'Lymphoma in children and young people'.

What causes Burkitt lymphoma?

There are three types of Burkitt lymphoma that all have similar symptoms and are treated in the same way. They can be separated by their different causes:

Sporadic Burkitt lymphoma

This type is the most common in the UK. In most cases, we don't know what causes someone to develop sporadic Burkitt lymphoma. For some people, sporadic Burkitt lymphoma is linked to infection with a virus called the Epstein-Barr virus (EBV), which usually causes glandular fever.

It's important to understand that while EBV is linked to Burkitt lymphoma in some cases, it doesn't 'cause' Burkitt lymphoma. Not everyone who is infected with EBV will develop cancer, but in some people it's thought that EBV triggers changes in the cells that are connected to developing Burkitt lymphoma.

Immunodeficiency-associated Burkitt lymphoma

This type is more common in people with HIV, or people who have had an organ transplant and are taking medication that reduces the strength of their immune system (immune-suppressing drugs).

Endemic Burkitt lymphoma

This type is most common in young children from central Africa and may also be linked to EBV infection.

You can't catch Burkitt lymphoma from others or pass it on to someone else, and there's nothing you could have done to prevent it.

What are the symptoms?

The main sign of Burkitt lymphoma is having swollen lymph nodes. Lymph nodes are small lumps of tissue that help you fight infection (they're also known as glands). Lymphoma cells can collect in these lymph nodes, causing them to swell and become visible lumps.

The most common place for you to notice these lumps would be in your neck, armpit or groin. The lymphoma cells can also

collect in your bowel and stomach area (abdomen), and other organs like your liver and spleen.

Other symptoms depend on where the lymphoma develops in your body but can include:

- drenching night sweats
- high temperature (fever)
- unexplained weight loss
- extreme tiredness (fatigue).

If the lymphoma cells collect in your abdomen, symptoms may also include:

- pain in your abdomen
- feeling sick (nausea)
- being sick (vomiting).

If the lymphoma affects your bone marrow, this can reduce the number of blood cells your body produces. This may lead to weakness, extreme tiredness (fatigue), and a higher risk of infection and bleeding. In endemic Burkitt lymphoma, a swollen jaw can also be a sign of the condition.

How is Burkitt lymphoma diagnosed?

Doctors diagnose Burkitt lymphoma by looking at your bone marrow, genes and lymph nodes. They will need the results of several tests to confirm a diagnosis of Burkitt lymphoma.

Bone marrow biopsy

In some cases, a diagnosis can be made by looking at your bone marrow under a microscope. You'll need to have a procedure called a bone marrow biopsy for this.

During the biopsy, a sample of your bone marrow is removed, usually from the hip bone. First, your doctor will inject some anaesthetic to numb the area. Then, they'll insert a long needle through the skin and into the hip bone to remove the sample. The full procedure takes about 30 minutes, but removing the sample only takes a few minutes.

Lymph node biopsy

It's also common to have a lymph node biopsy. This is a minor operation under anaesthetic, where your doctor will take a small sample of one of your lymph nodes. The sample is then viewed under a microscope to help identify lymphoma cells.

Cytogenetic testing

All the cells in your body contain genes, which tell the cells what to do and when to do it. In many cancers, there are changes to the genes in the affected cells. These changes to the genes happen during a person's life, they are not genetic changes that are passed down through families. You cannot inherit Burkitt lymphoma from your parents.

In Burkitt lymphoma, a gene called c-myc is affected and doesn't work properly in the lymphoma cells. This causes these cells to grow too quickly. In most cases, doctors can use a blood or bone marrow sample to do cytogenetic testing (also called gene testing) to look for problems in your c-myc gene or other genes linked to Burkitt lymphoma.

Other tests and scans

You will also have some tests to see if the lymphoma has developed in other parts of your body.

These may include:

- physical examination (looking at any lumps)
- blood tests
- CT scans, PET scans and MRI scans
- a lumbar puncture test, to see if there are lymphoma cells in your spinal fluid.

For more information about these tests, see our **High-grade non-Hodgkin lymphoma** booklet or go to [bloodcancer.org.uk/tests](https://www.bloodcancer.org.uk/tests)

Stages of Burkitt lymphoma

Doctors use a process called staging to see how much of your body has been affected by the condition, and to see how far the lymphoma has developed. This is important as it helps your doctors to plan the best treatment for you.

The stages of Burkitt lymphoma range from Stage 1, where the lymphoma cells are in one area of your body (usually the lymph nodes), to Stage 4, where the lymphoma has progressed and affects the bone marrow and/or central nervous system.

How is Burkitt lymphoma treated?

The main treatment is a combination of chemotherapy and immunotherapy (known as chemoimmunotherapy).

You will usually be treated in a specialist hospital over two to four long visits, with each visit lasting 14 to 21 days. It may help to talk about preparing for your hospital visits with your healthcare team when planning your treatment together.

Before you start treatment, your doctor may give you other drugs (sometimes called 'premedication') to reduce the chance of you experiencing side effects. For example, you may be given a drug called rasburicase through a drip (infusion) to help protect your kidneys from a build-up of uric acid, which can be a side effect of chemotherapy.

Chemotherapy

Chemotherapy means using drugs to kill cancer cells or stop them from growing. There are many different drugs used in chemotherapy. You may be given any of the drugs listed below in different combinations as part of your treatment:

- cyclophosphamide
- cytarabine
- doxorubicin
- etoposide
- ifosfamide
- methotrexate
- prednisone
- vincristine.

The drugs you receive, and how many courses you have, will depend on how well you're able to cope with the treatment, how fast the lymphoma is developing and how widespread it is (its stage) at the time of your diagnosis.

The drugs will be given to you through a vein (intravenously). You'll usually have a PICC line (peripherally inserted central catheter) or a Hickman® line fitted for this.

These lines are long, thin, flexible tubes that go in at the arm or chest, and tunnel under the skin to reach a large vein in your chest. They usually stay in throughout your treatment. They can be used to deliver the drugs, so that you don't need to have repeated injections.

They're fitted by a specialist nurse or doctor using local anaesthetic to numb the area. The fitting procedure only takes a few minutes and is usually painless, although you might find it a bit uncomfortable.

You might also receive treatment through an injection into your spinal fluid (intrathecally), to treat or reduce the risk of lymphoma developing in your central nervous system.

Side effects of chemotherapy

Some people may experience side effects from these drugs, so you should let your doctor or nurse know if you notice anything that's unusual for you.

Common side effects of chemotherapy include:

- extreme tiredness (fatigue)
- feeling sick (nausea) or being sick (vomiting)
- hair loss
- numbness in your hands or feet
- anaemia (low numbers of red blood cells)
- bleeding or bruising.

You're unlikely to have all of these side effects – especially as some are linked to specific drugs. If you do experience any, your doctor may give you other medicines to help your body cope with them and keep you as healthy as possible during your treatment. Remember, everyone is different – some people experience very few side effects.

Chemotherapy can also affect fertility for men and women (your ability to get pregnant). If this is a concern for you, ask your healthcare team about the options available for preserving your fertility, before you start your treatment.

Chemotherapy can cause unusually low levels of neutrophils (a type of white blood cell that helps you fight infection). This is called neutropenia.

If you are neutropenic, you may be given growth factor injections (G-CSF) to help your body make new neutrophils.

This will help to protect you from infection between chemotherapy courses.

If you get an infection while you're neutropenic, then you are at risk of a serious condition called neutropenic sepsis, which can be life-threatening.

If you develop this complication, you'll need to go to hospital straight away, so it's important that you talk to your doctor about how to spot the symptoms of neutropenic sepsis and follow their advice.

For more information about neutropenic sepsis, see our **Understanding infection** fact sheet. To order or download a copy, visit **bloodcancer.org.uk/information**

Immunotherapy

Immunotherapy is a treatment that encourages the body's immune system to target and fight cancer cells. The immunotherapy drug used to treat Burkitt lymphoma in combination with chemotherapy is called rituximab. It works together with your immune system to destroy the lymphoma cells.

Rituximab is given through one of your veins (intravenously) or injected just under your skin (subcutaneously). This treatment is sometimes called an antibody drug, or a monoclonal antibody treatment.

Side effects of rituximab

Like chemotherapy, rituximab can also cause side effects. The most common include:

- high temperature (fever)
- chills
- shivering.

You should tell your doctor or nurse straight away if you develop any of these side effects or feel unwell during or after the treatment.

For more information about treatments and side effects, see our **High-grade non-Hodgkin lymphoma** booklet. Visit **bloodcancer.org.uk/information**

What's the outlook?

With the right treatment, many people with Burkitt lymphoma can be cured. The outlook for younger adults can be very good. The outlook for older adults who are less able to tolerate strong treatments can be poorer, although this is improving with new treatments.

The best chance of being cured comes from your initial treatment (also known as first-line treatment or primary therapy). If your health improves and the lymphoma does not return within two years, the chance of your symptoms and the condition returning after this (known as relapse) is very low.

Your own outlook is individual to you and will depend on your age, personal circumstances, and the stage of the lymphoma. Your healthcare team are the best people to speak to about it.

If the cancer returns

If the lymphoma does return, you may be offered different treatment options from your initial treatment, including a stem cell transplant.

Stem cell transplants help your body to create new healthy blood cells. You will also have chemotherapy as part of this treatment.

Although a stem cell transplant can be a very effective treatment, it does carry risks, and it's not suitable for everyone with Burkitt lymphoma. Your healthcare team are the best people to talk to about which treatments are right for you.

For more information on stem cell transplants, see our booklet: **Blood stem cell and bone marrow transplants: the seven steps**. To order or download a copy, visit **bloodcancer.org.uk/information**

About this fact sheet

We have produced this fact sheet in collaboration with expert medical professionals and people affected by blood cancer. Thank you to Dr Robert Marcus and Dr Kirit Ardeshta for their support checking the content of this fact sheet.

Our fact sheets contain general information. Always listen to the advice of your specialist about your individual condition because every person is different.

A list of references used in this fact sheet is available on request.
Please email information@bloodcancer.org.uk

Disclaimer

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Blood Cancer UK, 39–40 Eagle Street, London WC1R 4TH

020 7504 2200 | hello@bloodcancer.org.uk | bloodcancer.org.uk

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