

Chemotherapy

Chemotherapy (chemo) is a treatment that uses anti-cancer drugs to destroy cancer cells, including leukaemia and lymphoma cells. You may have one chemotherapy drug, or you may have more than one. When you are treated with two or more chemotherapy drugs, doctors call it combination chemotherapy.

The type of chemotherapy you will have depends on:

- the type of cancer you have
- the risk of the cancer coming back
- whether the cancer has spread.

Doctors often use chemotherapy with surgery and radiotherapy.

It can also be used with targeted therapies and hormonal therapies. We have information about targeted therapies and hormonal therapies that is written for people of all ages, not just teenagers and young adults.

Doctors use chemotherapy in different ways:

- As the main treatment for cancers such as lymphoma and leukaemia.
- Before surgery or radiotherapy, to shrink a cancer and make it easier to treat.
- After surgery or radiotherapy, to reduce the risk of a cancer coming back.
- At the same time as radiotherapy, to make that treatment work better. This is called chemoradiation.
- To try to control the cancer and reduce any symptoms.

How does it work?

Chemotherapy works by killing cancer cells when they are dividing and growing. Most chemotherapy drugs travel through the blood. This means that they can reach cancer cells anywhere in the body. Different chemotherapy drugs work in different ways. Doctors often use a combination of chemotherapy drugs.

Chemotherapy also affects healthy cells when they are dividing and growing. This is what causes side effects. These side effects usually go away when treatment ends, but sometimes side effects can happen after treatment.

Being treated with chemotherapy

Your chemotherapy plan

Your doctors will follow a chemotherapy plan for your treatment. They usually give chemotherapy in cycles. In a chemotherapy cycle, you will have one or more days of chemotherapy followed by rest days without chemotherapy. The rest days allow your body to recover from the side effects of chemotherapy.

Your doctor or chemotherapy nurse will tell you how many cycles you are likely to need and how long you will have chemotherapy for. This makes up your chemotherapy plan.

Being treated with chemotherapy

The most common way to have chemotherapy is directly into a vein. You can have it through:

- a cannula
- a central line
- a PICC line
- an implantable port (portacath).

Having a line or port put in

A cannula is taken out after each treatment or before you go home. A line or portacath (port) can stay in until your chemotherapy is over. If you have a line or port, nurses can also take blood samples from it. This means you won't need a needle put in your arm each time you have blood taken. Your nurse will show you how to look after your line or port.

Cannula

A cannula is a short, thin tube that your nurse or doctor puts into a vein in your arm or the back of your hand. Having the cannula put in can be a bit uncomfortable, but it does not usually take long. Your nurse may put some anaesthetic cream or spray onto your skin to numb the area first. Once the cannula is in place, your nurse will cover it with a clear dressing to make sure it stays in.

Central line

A central line is a long, thin, flexible tube that your doctor puts through a cut in the skin of your chest into a vein. The end of the line will be on the outside of your chest, but your clothes will cover it.

Central lines are sometimes known by their brand names. You might hear your nurse calling it a Hickman® line or Groshong® line.

Before a central line is put in, you have a local anaesthetic to numb the area. Some people will have a general anaesthetic (you are asleep and can't feel anything). Your doctor or nurse will explain what is going to happen so that you know what to expect.

The doctor will make a small cut in the skin near your collarbone and thread the tip of the line into a large vein just above your heart. They then make a small cut lower down on your chest. They will tunnel the other end of the line under the skin to reach this cut on your chest. This is where the line will come out of your body, called the exit site. They will close the cut near your collar bone and put a dressing over it. They will then put a stitch around the line and into your chest at the exit site. This holds the line in place. You will have a chest x-ray to make sure that the line is in the right position.

There is a small cuff around the central line, close to where it comes out of your chest. You can feel this as a bump just under the skin. Over about three weeks, the tissue under your skin grows around the cuff and holds the line safely in place. After this, a nurse will take the stitch out.

PICC line

PICC stands for peripherally inserted central venous catheter. A PICC line is a long, thin, flexible tube that your nurse or doctor puts into a vein above the bend in your elbow.

Before a PICC line is put in, your nurse or doctor will give you some local anaesthetic to numb the area. They will then gently thread the line up through the vein, until the tip of the tube is in a vein near your heart. Once it is in place, you will have a clear dressing put over the PICC line to keep it in place.

Implantable port (portacath)

An implantable port is a thin, soft, plastic tube with a rubber disc (port) at the end. It can be put in under a general or local anaesthetic. The doctor will insert the tube into a vein until its tip sits just above your heart. The port lies under the skin on your upper chest. Once it is in place, you can feel and see the port as a small bump underneath the skin of your chest, but nothing shows on the outside of your body.

Your nurse will put a special needle called a Huber needle through your skin and into the port when giving you treatment. The skin over the port can be numbed with an anaesthetic cream first.

Looking after your line or port

The nurses will show you how to take care of your line or port. It might be difficult at first, but most people get used to it quickly.

The line or port will have to be flushed. This is done with a syringe and a small amount of fluid that is injected into the line or port. It usually needs to be done once a week to stop the line getting blocked. Your doctor or nurse may teach you to do this, or a district nurse can come to your home to do it.

You can have showers or baths, but make sure you keep your skin dry where the tube goes in. Your nurse will give you advice on how to stop it getting wet.

You also need to know how to recognise if anything is wrong with your line or port. This is so any problems with the line can be treated as soon as possible.

Possible problems

Most people will not have serious problems with their line or port. The main problems to look out for are blockages and infections. Contact the hospital straight away and talk to your doctor or nurse if you have any of the following:

- reddening, darkening or soreness of the skin around the line or port
- a high temperature – this could be over 37.5°C (99.5F), depending on the advice given by your chemotherapy team
- feeling shivery or unwell after your line or port has been flushed
- fluid leaking from the skin around the line or port
- pain or swelling in your chest, arm or neck.

If the port or line is infected, your doctor will give you antibiotics straight away to treat it.

If the line or port gets blocked because of a clot, your nurse or doctor will inject drugs into it to help dissolve the clot.

Sometimes they may have to remove the line or port because of an infection or clot.

Having the line or port taken out

When you have finished treatment and you no longer need the line or port, your doctor or nurse will remove it. When they do this, they usually give you a local anaesthetic to numb the area around it. If you are worried about having it removed, you can have some medicine to help you feel more relaxed (a sedative).

Your doctor or nurse will clean the area around the line or port. They will then make a small cut in your skin and gently remove the line or port. This does not hurt, and won't take long. You will be able to go home once you have recovered.

Having chemotherapy into a vein

Chemotherapy can be given into a vein:

- As an injection directly into your cannula, line or port. Sometimes you have it with a drip (infusion) to flush the drugs into the vein.
- As a drip. The chemotherapy drugs are in a bag of fluid. This is attached to tubing connected to your line, port or cannula. When chemotherapy is given this way, it is often given through a pump. The nurses hang the bag and set the rate on the pump for the drugs to go through at. The treatment can last from 20 minutes to a few hours.
- Through a small syringe pump attached to your line. The chemotherapy is in a syringe in the pump. The pump can fit into a pocket, or you can carry it in a bag or belt. A nurse sets it to give your chemotherapy over a few days. This means you can go home with it. The nurses will show you how to look after it.

If some types of chemotherapy drug leak outside of the vein, they can damage tissue around the vein. This rarely happens with a line or port, but it can happen if a cannula is not positioned in the vein correctly.

If you notice any swelling, pain, stinging or redness around the cannula, line or port during your treatment session, tell your nurse immediately. If any of these problems develop after you get home, contact your chemotherapy nurse or hospital doctor straight away.

Allergic reaction

Some people have an allergic reaction while having this treatment. Before treatment, you will be given medicines to help prevent or reduce any reaction.

Signs of a reaction can include:

- feeling hot or flushed
- a skin rash
- itching
- shivering
- feeling dizzy
- a headache
- feeling breathless
- swelling of your face or lips

- pain in your back, tummy or chest.

Your nurse will check you for signs of a reaction during your treatment. If you feel unwell or have any of these signs, tell them straight away. If you do have a reaction, it can be treated quickly.

Sometimes a reaction can happen a few hours after treatment. If you develop any signs or feel unwell after you get home, contact the hospital straight away.

Having chemotherapy as tablets or capsules

Some chemotherapy drugs are taken as tablets or capsules. After you swallow them, the drugs are absorbed into your blood and carried around your body.

Your doctor or nurse will tell you when to take the drugs. They will also tell you whether you need to take them with food and how to store them safely. It is important to:

- take them exactly as prescribed
- tell your hospital nurse or doctor if you cannot take your tablets for any reason.

Having chemotherapy injected into the spinal fluid

Having chemotherapy injected into the fluid around the spinal cord is called intrathecal chemotherapy. This fluid is called cerebrospinal fluid (CSF).

In some cancers of blood cells, such as some lymphoma and leukaemia and in certain brain tumours, cancer cells can pass into the CSF. To stop this happening, or to treat it if the cells have spread, chemotherapy can be given directly into the CSF.

Your doctor or nurse will explain what is going to happen so that you know what to expect. They will make sure you are comfortable, and you can have a relative or friend with you.

You lie on your side with your legs drawn up, or you sit up and bend over a table, supported by a pillow. Your doctor will give you a local anaesthetic to numb an area of skin over your lower spine. They will then put a needle into the space between two of the bones in your spine and into the CSF. Then they will inject the chemotherapy through the needle and into the CSF.

This is not usually painful, but some people find it uncomfortable. The most common side effect is a headache that can last for several hours. To help prevent this, you need to lie flat for a while after the treatment and drink plenty of fluids. Your doctor or nurse will tell you how long to lie down for. They will also tell you which painkillers to take if you get a headache.

Side effects

Feeling tired

During treatment (and for a while afterwards) you may have less energy than usual. Tiredness often builds up as the treatment goes on. It usually gets better when treatment ends, but it can take a few months for your energy levels to recover.

Sometimes your doctor can treat whatever is causing your tiredness, such as a low number of red cells in your blood (anaemia). So it is important to tell your doctor if you are feeling tired.

If you feel tired, get plenty of rest. Try to pace yourself and don't do too much. It is also important to try to do some gentle exercise, like short walks. Being active increases your energy levels and helps keep up your muscle strength.

There may be days during a cycle of chemotherapy when you feel very tired and other days you have more energy. You may have more energy to do things you enjoy on the days before your next cycle of treatment is due to start.

If you feel able to go out with your friends, there is no reason why you can't. But be careful to avoid crowded places on the days you are at more risk of getting an infection. Your nurse can tell you about this.

Let your friends know that you might have to cancel plans at short notice if you are not up to it. You can ask them to keep in touch through social media or texts so you don't feel left out.

If you are studying, you may need to take time away from school, college or university. Talk to your doctor or chemotherapy nurse about this. Your school or college may be able to send you work, so you can carry on studying whilst you are at home or in hospital.

Risk of infection

This treatment can reduce the number of white blood cells in your blood. These cells fight infection. If the number of white blood cells is low, you are more likely to get infections. A low white blood cell count is called neutropenia.

If you have an infection, it is important to treat it as soon as possible. Contact the hospital straight away on the 24-hour contact number you have been given if:

- your temperature goes over 37.5°C (99.5°F)
- you suddenly feel unwell, even with a normal temperature
- you have symptoms of an infection.

Symptoms of an infection include:

- feeling shivery
- a sore throat
- a cough
- diarrhoea
- needing to pass urine often.

It is important to follow any specific advice your cancer treatment team gives you.

The number of white blood cells will usually return to normal before your next treatment. You will have a blood test before having more treatment. If your white blood cell count is low, your doctor may delay your treatment for a short time.

Anaemia

This treatment can reduce the number of red blood cells in your blood. These cells carry oxygen around the body. If the number of red blood cells is low, you may be tired and breathless. Tell your doctor or nurse if you feel like this. If you are very anaemic, you may need a drip to give you extra red blood cells. This is called a blood transfusion.

Bruising and bleeding

This treatment can reduce the number of platelets in your blood. Platelets are cells that help the blood to clot. Tell your doctor if you have any bruising or bleeding that you can't explain. This includes:

- nosebleeds
- bleeding gums
- tiny red or purple spots on the skin that may look like a rash.

Some people may need a drip to give them extra platelets. This is called a platelet transfusion.

Feeling sick

Some chemotherapy drugs can make you feel sick (called nausea) or sometimes be sick (vomit). If your treatment might make you feel sick, you will be given anti-sickness drugs before having it. You can have the drugs as a tablet or put into the vein. Your doctor might also give you drugs called steroids, to help prevent sickness.

Make sure you take anti-sickness drugs exactly as your nurse has told you to, even if you do not feel sick. It is easier to prevent sickness than to treat it once it has started. Contact the hospital if you feel sick or if you are sick. If one anti-sickness drug does not work for you, your doctor can give you another type.

Diarrhoea

Some chemotherapy drugs can cause diarrhoea. This often starts a few days after you have the treatment. If you are taking chemotherapy tablets or capsules at home, it is important to tell your doctor or nurse if you have diarrhoea. They may have to stop your treatment for a time or give you medicine to help. It is important to drink plenty of fluids if you have diarrhoea.

Constipation

Some chemotherapy drugs, anti-sickness drugs and painkillers can make you constipated. Let your nurse or doctor know if this happens. They can give you drugs to treat it.

If you are constipated, eating more fibre (cereals, raw vegetables and fruits) and drinking plenty of liquid can help. Gentle exercise, such as short walks, can also help.

Sore mouth

Your mouth may get sore or dry. You may get small ulcers in your mouth during treatment. Some people find that sucking ice soothes the soreness. Drink plenty of

fluids, and clean your teeth regularly with a soft toothbrush. This will help to reduce the risk of a sore mouth and help it to recover more quickly. Tell your nurse or doctor if you have any mouth problems. They can give you mouthwashes and medicine to prevent or clear mouth infections.

Taste changes

You may get a bitter or metal taste in your mouth. Sucking sugar-free sweets may help with this. Some foods may taste different or have no taste. Try different foods to find out what tastes best to you. Taste changes usually get better after treatment finishes. Your nurse can give you more advice.

Poor appetite

Some people lose their appetite when they are having chemotherapy. This can be mild and may only last a few days. If your appetite does not improve, tell your chemotherapy nurse. They can arrange for you to see a dietitian.

Hair loss

Some chemotherapy drugs make your hair fall out. Sometimes, hair gets thinner or becomes dry and breaks easily. Your doctor or nurse will be able to tell you if you are likely to lose your hair.

Hair loss usually starts within a few weeks of starting treatment. Rarely, it can start after a few days. As well as the hair on your head, you may lose body hair and your eyelashes and eyebrows.

Losing your hair can be tough to cope with. Your hair will usually grow back again once you have finished treatment. There are lots of ways you can cover up until then. Talk to your nurse about your options. You can use baseball caps, beanies, hats, wigs, bandanas or scarves. Or you might choose to shave your head and not cover up – it's your choice.

Some wigs can look a lot like your own hair. If that's what you want, it's a good idea to have one fitted before you lose your hair, so that you can get a close match. Or you might want to try something completely different. You can usually get a wig on the NHS and your usual hairdresser can style it for you.

You might want to have your hair cut short before you start chemotherapy. This is because the weight of long hair pulling on the scalp can make it fall out faster. When you start to lose your hair, you can wear a soft hat or a turban at night to help collect any loose hair.

Here are some tips for looking after your hair if it thins and when it is growing back:

- Use gentle hair products and pat hair gently with a towel to dry it after washing.
- Avoid using hairdryers, straighteners or other heated hair tools.
- Use a brush with wide prongs or a wide-toothed comb, and be gentle when brushing your hair.
- If your hair breaks easily, or your scalp is dry and itchy, do not dye your hair. Wait until it is in better condition. When it is, use a vegetable-based colourant –ask your hairdresser for advice.

Risk of blood clots

Cancer can increase your risk of developing a blood clot (thrombosis) in your leg or chest. Having chemotherapy may also increase this risk.

A blood clot may cause symptoms such as:

- pain, redness and swelling in a leg
- breathlessness and chest pain.

Blood clots can be very serious if they are not treated. Always contact the hospital immediately on the 24-hour contact number you have been given if you have any of these symptoms. A doctor will treat the clots with drugs to thin the blood. Your doctor or nurse can give you more information about blood clots.

Changes in how your kidneys work

Some chemotherapy drugs can affect how well your kidneys work. If you are having one of these drugs, you will have a blood test before each treatment to check your kidneys are working well. You will be given fluid through a drip (infusion), before and after the treatment, to keep your kidneys working normally. The nurses may ask you to drink plenty of fluid and to record what you drink and the amount of urine you pass.

Numb or tingling hands or feet

Some chemotherapy drugs can affect the nerves in your hands or feet. This can cause tingling or numbness, a feeling of pins and needles or muscle weakness (called peripheral neuropathy).

It is important to let your doctor know if this happens. They may need to change the chemotherapy drug if it gets worse. Usually, peripheral neuropathy gets better gradually when chemotherapy is over, but sometimes it is permanent.

Skin changes

Some chemotherapy drugs can affect your skin. They can make your skin dry or itchy, slightly discoloured, or can cause a rash. Use a perfume-free moisturiser to keep your skin soft and well-moisturised. Let your nurse know about any skin changes you notice.

Your skin might also be more sensitive to sunlight during and after chemotherapy treatment. Protect yourself from the sun by wearing loose clothing, a hat and high-factor sunscreen (at least SPF 30) on exposed skin.

Changes in hearing

Some chemotherapy drugs, such as cisplatin, can affect your hearing. You might not be able to hear high-pitched sounds as well as you could before. Or you might have a high-pitched ringing in your ears (called tinnitus). Any hearing loss can be permanent, but tinnitus usually improves when your treatment ends.

Fertility

Some chemotherapy drugs can cause changes to fertility (being able to make someone pregnant or get pregnant). Your doctor or nurse should talk to you about this before you start cancer treatment. If there is a risk that chemotherapy will affect your fertility, they will talk to you about treatment called fertility preservation.

Late effects

Chemotherapy can help to cure cancer, but may sometimes cause long-term side effects or health problems years after treatment. These are called late effects. Doctors are researching ways to prevent or reduce the chances of late effects.

It is important to have a healthy lifestyle after treatment, including exercising regularly and not smoking. Having a healthy lifestyle can reduce the risk of problems. Your doctor will talk to you about this.

After your chemotherapy is over, you will come back to the clinic for check-ups, usually for many years. This means any health problems linked to the treatment you had can be picked up and treated early. Possible late effects depend on the type of treatment you had and the dose of chemotherapy drugs you had. Your cancer doctor and specialist nurse will talk to you about any possible late effects.