Chemotherapy

This fact sheet gives information about chemotherapy. Many people with cancer will have chemotherapy as part of their treatment.

We also have fact sheets in your language about radiotherapy and surgery.

We hope this fact sheet answers your questions. If you have any further questions, you can ask your doctor or nurse at the hospital where you are having your treatment.

Throughout the fact sheet we may refer to other booklets and information that is available from Macmillan. Unfortunately, most of these are currently only available in English. However, if you’d like to discuss this information with our cancer support specialists, interpreters are available for non-English speakers.

Call the Macmillan Support Line free on 0808 808 00 00, Monday–Friday, 9am–8pm. If you’re hard of hearing you can use textphone 0808 808 0121, or Text Relay. Alternatively, visit macmillan.org.uk

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What is cancer?

The organs and tissues of the body are made up of tiny building blocks called cells. Cancer is a disease of these cells.

Although cells in each part of the body may look and work differently, most repair and reproduce themselves in the same way. Normally, cells divide in an orderly and controlled way. But if for some reason the process gets out of control, the cells carry on dividing and develop into a lump called a tumour.

This is important to remember because chemotherapy works on dividing cells.
What is chemotherapy?
Chemotherapy is the use of anti-cancer drugs to destroy cancer cells. There are different groups of anti-cancer drugs that can be used. The main group that many people think of as ‘chemotherapy’ is cytotoxic chemotherapy. Cytotoxic means toxic or damaging to cells. This fact sheet is about the use of cytotoxic chemotherapy to treat cancer.

A single drug or a combination of several drugs may be given during a course of treatment. There are about 50 chemotherapy drugs available, so many different combinations of drugs can be used.

Some chemotherapy drugs may contain very small amounts of alcohol. The alcohol is used to stabilise the drug to make it safe to give. If you’re concerned about having these drugs because of your religious and cultural beliefs, it may help to discuss this with your religious leader, doctor or nurse.

When is chemotherapy used?
Chemotherapy is one type of cancer treatment. Other forms of treatment include surgery, radiotherapy or hormone treatment.

Chemotherapy is given to control or destroy existing cancer, and to try to prevent cancer from coming back (recurrence).

Chemotherapy may be the only treatment used for some types of cancer. It can also be used in combination with the other types of treatment mentioned above. For example, chemotherapy may be given after surgery to destroy any cancer cells that remain. It can also be given before an operation to reduce the size of the tumour, which can help make an operation easier to perform. Sometimes chemotherapy is given to shrink and control a cancer to help reduce symptoms and prolong life. This is often known as palliative chemotherapy.

How chemotherapy drugs work
Chemotherapy drugs work by stopping cancer cells dividing and reproducing themselves. As the drugs are carried in the blood, they can reach cancer cells anywhere in the body. The drugs are also taken up by some healthy cells. Healthy cells can repair the damage caused by chemotherapy, but cancer cells can’t and eventually die. Different chemotherapy drugs damage cancer cells in different ways. If a combination of drugs is used, each drug is chosen because of its different effects.

Chemotherapy is usually given as a series of sessions of treatment. Each session is followed by a rest period. The session of chemotherapy and the rest period is called a cycle of treatment. A number of cycles makes up a course of treatment. Your cancer specialist will decide how many cycles you have based on your situation.

Giving chemotherapy
Chemotherapy drugs are commonly given into a vein (intravenously) and by mouth (orally). Occasionally, chemotherapy is given by injection under the skin, into the muscle, into the fluid around the spine or into a body cavity such as the bladder or pelvic cavity. Chemotherapy creams may also be used for some skin cancers.

Intravenous chemotherapy
Many chemotherapy drugs are given by injection into a vein. There are four ways of giving chemotherapy in this way:

• **Cannula** A small tube inserted into a vein in your arm or in the back of your hand.

• **Central line** A thin, flexible tube inserted through the skin of the chest into a vein near the heart.

• **PICC (peripherally inserted central catheter) line** A thin, flexible tube passed into a vein in the bend or upper part of the arm and threaded through until the end of the tube lies in a vein near the heart.
• **Implantable port** (also called a **portacath**) A thin, soft, plastic tube that is put into vein. It has an opening (port) just under the skin on your chest or arm.

**Infusion pumps** may be used to give some types of chemotherapy. These give a controlled amount of chemotherapy into the bloodstream over a period of time (from a few days to a few weeks).

The pump is connected to a central line, PICC line or implantable port. This means that you can go home with the pump and need fewer visits to hospital. The pumps are small enough to fit into a pocket or can be carried in a bag or belt holster.

If you have an infusion pump, the nurses at the hospital will teach you and a family member or friend how to look after it. They will also give you a contact number if you have any problems or questions.

**Giving consent for treatment**

Before you have any chemotherapy your doctor or specialist nurse will explain the aims of the treatment to you. You will be asked to sign a form to show that you agree to the chemotherapy treatment and understand its possible side effects. You’ll also have the chance to ask questions about any concerns you might have.

It’s a good idea to take someone with you who speaks both your language and English. Interpreters may be available if you need one, but try to let the hospital know in advance if you would like one present. Remember, no treatment will be given without your consent.

Talk to your doctor if you’re concerned that your chemotherapy may affect any religious practice or issues such as diet before you give your consent.

**Where is treatment given?**

Chemotherapy is given in a specialist chemotherapy unit. Not all hospitals have these units, so you may need to travel for treatment.

Most intravenous chemotherapy drugs can be given to you as a day patient at the hospital. This may take from half an hour to a few hours. With other chemotherapy drugs a short stay in hospital may be necessary. If you’re having chemotherapy tablets, capsules or creams, these can be given to you to take at home.

**Length of treatment**

The length of treatment depends on the type of cancer and the person’s response to chemotherapy. Treatments differ from patient to patient as each person responds differently. Usually, treatment will be reviewed after about three cycles and your specialist may be able to give more of an idea as to how much more treatment is needed.

If you’re planning a holiday, it’s important to let the doctors know as soon as possible so that treatment can be arranged accordingly. Because chemotherapy affects the immune system, it’s not possible to have ‘live’ vaccines such as polio, measles, rubella (German measles), BCG (TB), smallpox and yellow fever. Some people may also be advised to avoid flying.

**Tests before treatment**

You may need some tests before starting your treatment. These help the doctors make sure you’re well enough to have chemotherapy treatment. Tests usually include blood tests and possibly urine or heart tests.

Before each cycle of chemotherapy, you’ll normally have blood tests and see the doctor or specialist chemotherapy nurse. This can take some time. Your GP, practice nurse or staff at a hospital close to your home may be able to test your blood a day or two before your treatment, so that you
don’t have to wait so long on the day of treatment. If your blood is tested at your GP surgery or at another hospital, the results can be sent to the hospital where you are having your treatment.

Sometimes, you may also need to have more x-rays or scans before treatment starts.

**Changes to your treatment plan**
Your doctors will use blood tests and sometimes urine tests to monitor the effect the chemotherapy is having on your body.

If you have a tumour that can be seen on a scan or felt by the doctor, the hospital staff will regularly check the effects of the chemotherapy on the cancer. The results from your blood tests and any scans or x-rays can show how much the cancer is responding to the treatment.

Depending on the results of the tests, your treatment plan may sometimes need to be changed. There can be many reasons for this and your doctor will explain why the changes are needed. It may be because the drugs you’re having are starting to cause damage to particular parts of the body such as the bone marrow, kidneys, liver or nerves in the hands or feet. Sometimes it can be because the chemotherapy is not shrinking the cancer enough. If this is the case, then changing to different drugs may be more effective.

Sometimes your treatment may need to be delayed to give your body longer to recover before the next cycle of treatment is given. The most common reason treatment is delayed is the number of white cells in the blood being too low.

If there is a special occasion coming up or you want to go on holiday, it may be possible to arrange the timing of your treatment to fit in with this. Your doctor can tell you whether this is possible.

**Possible side effects**
Unfortunately, chemotherapy drugs can cause unpleasant side effects, as they affect some of the healthy cells in your body. However, damage to the healthy cells is usually temporary and most side effects will disappear once the treatment is over.

Different drugs cause different side effects and each person will react in a different way. Some people have very few side effects while others may experience more. Almost all side effects are short-term and will gradually disappear once treatment finishes.

The main areas of your body that may be affected by chemotherapy are those where normal cells rapidly divide and grow. These areas include the lining of your mouth, the digestive system, your skin, hair and bone marrow (the spongy material that fills the bones and produces blood cells).

The side effects described here won’t affect everyone who has chemotherapy. We have outlined the most common side effects but haven’t included those that are rare and therefore unlikely to affect you. If you notice any effects which aren’t listed here or if want to know more about side effects, ask your doctor or chemotherapy nurse who will know the exact drugs you are taking.

**Your bone marrow and blood**
Chemotherapy can reduce the number of blood cells produced by the bone marrow. Bone marrow is the spongy material that fills the bones and produces the cells that develop into the three different types of blood cells:
- **red blood cells**, which carry oxygen to all parts of the body
- **white blood cells**, which are essential for fighting infection
- **platelets**, which help the blood to clot and control bleeding.

**Risk of infection** Chemotherapy can reduce the number of white blood cells produced by the bone marrow, making
you more prone to infection. A low white blood cell count is called neutropenia. This begins seven days after treatment and your resistance to infection is usually at its lowest 10–14 days after chemotherapy. Your number of white blood cells will then increase steadily and usually return to normal before your next cycle of chemotherapy is due.

**Contact your doctor or the hospital straight away if:**

- your temperature goes above 38°C (100.4°F)
- you suddenly feel unwell, even with a normal temperature.

You will have a blood test before having more chemotherapy to check the number of white blood cells. Occasionally, your treatment may need to be delayed if the number of blood cells (blood count) is still low.

**Anaemia** Chemotherapy can reduce the number of red blood cells which carry oxygen round the body. This may make you feel tired and breathless. Tell your doctor or nurse if you have these symptoms. You may need to have a blood transfusion if the number of red blood cells becomes too low.

**Bruising and bleeding** Chemotherapy can reduce the production of platelets, which help the blood to clot. Tell your doctor if you have any unexplained bruising or bleeding such as nosebleeds, bleeding gums, blood spots or rashes on the skin. You may be given a platelet transfusion if your platelet count is low.

**Feeling sick (nausea) or being sick (vomiting)** Your doctor can prescribe very effective anti-sickness (anti-emetic) drugs to prevent, or greatly reduce, nausea or vomiting. If the sickness isn’t controlled or if it continues, tell your doctor. They can prescribe other anti-sickness drugs that may be more effective.

Some anti-sickness drugs can cause constipation. Let your doctor or nurse know if this is a problem.

**Constipation or diarrhoea** Chemotherapy can cause constipation or diarrhoea. Constipation can usually be helped by drinking plenty of fluids, eating more high-fibre foods and taking gentle exercise. You may need to take medicine (laxatives) to help. Your doctor can prescribe these for you or you can buy them at a pharmacy.

Diarrhoea can usually be easily controlled with medicine, but tell your doctor if it’s severe or continues. It’s important to drink plenty of fluids if you have diarrhoea.

**Tiredness** Chemotherapy can make some people feel very tired, while others can carry on as normal. The important thing to remember is to do as much as you can and try not to overdo things.

**Sore mouth** Your mouth may become sore or dry, or you may notice small ulcers during treatment. Drinking plenty of fluids, and cleaning your teeth regularly and gently with a soft toothbrush, can help reduce the risk of this happening. It may also help to avoid foods which irritate the mouth such as garlic, onions, chillies and citrus fruit juices.

Tell your nurse or doctor if you have a sore mouth, as they can prescribe mouthwashes and medicine to prevent or clear mouth infections.

**Taste changes** You may notice that food tastes different. Normal taste usually comes back after treatment finishes. Occasionally during treatment you may get a strange, metallic or bitter taste in your mouth. Some people find sucking on strongly flavoured sweets or mints helps to disguise this. A dietitian or specialist nurse at your hospital can give you advice about ways of coping with this side effect.

**Loss of appetite** Some people lose their appetite while having chemotherapy. This may be mild and only last a few
days. If it doesn’t improve, you can ask to see a dietitian or specialist nurse at your hospital. They can give you advice on improving your appetite and keeping to a healthy weight.

Hair loss Not all chemotherapy drugs make your hair fall out. With some, the amount of hair lost is so slight it’s hardly noticeable. But some chemotherapy drugs can make all of your hair fall out and this can be very upsetting.

If your hair falls out, it usually starts 2–3 weeks after starting treatment, although very occasionally it can start within a few days. It will usually grow back over a few months once you’ve finished your treatment.

You’re entitled to a free wig if you’re an inpatient when your wig is fitted, or if you’re claiming specific benefits. If you’re not entitled to a free wig, you can get one from the NHS at a subsidised price.

Some people having certain types of chemotherapy may be able to prevent hair loss by using a ‘cold cap’. This is known as scalp cooling. It’s not suitable for everyone, but you can ask your doctor or nurse whether this would be useful for you.

Discuss with your doctor or specialist if you have religious or cultural issues around hair loss.

Fertility Your ability to become pregnant or father a child might be affected by having chemotherapy. It’s important to discuss fertility with your doctor before treatment begins.

Contraception

It’s not known whether chemotherapy drugs can be present in semen or vaginal fluids. To protect your partner, it’s safest to either avoid sex or use a barrier form of contraception (condom) for about 48 hours after chemotherapy.

Many religions may not use any form of contraception. It’s important that you discuss this with your doctor. Some people also find it helpful to talk through any concerns with their religious leader.

It’s important to let your doctor know straight away if you feel unwell or have any severe side effects, even if they’re not mentioned above.

Diet and religious festivals

It’s important to eat a balanced diet during your treatment. If your treatment falls during any religious festivals and you need to fast, or you need to bring your treatment forward or delay it, it’s important to discuss this with your doctor before treatment starts.

Related Macmillan information

• Understanding chemotherapy
• Chemotherapy fact sheets

For copies of this related information call free on 0808 808 00 00, or see it online at macmillan.org.uk

This fact sheet has been written, revised and edited by Macmillan Cancer Support’s Cancer Information Development team. It has been approved by our medical editor, Dr Terry Priestman, Consultant Clinical Oncologist.

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This fact sheet has been compiled using information from a number of reliable sources, including:


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