

EC-T CHEMOTHERAPY

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About this booklet

If you've been offered EC-T as part of your breast cancer treatment, it's natural to have questions and concerns about how it may affect you.

This booklet explains what EC-T is, how and when you might have it, and the side effects you may have.

You may find it helpful to read this booklet alongside our **Chemotherapy for breast cancer** booklet.

What is EC-T chemotherapy?

EC-T is a combination of 3 chemotherapy drugs.

It takes its name from the initials of the 3 drugs:

- E – epirubicin
- C – cyclophosphamide
- T – docetaxel (Taxotere) or paclitaxel (Taxol), which belong to a group of drugs called taxanes

Chemotherapy destroys cancer cells by affecting their ability to divide and grow.

Chemotherapy also affects other cells throughout the body, which causes side effects (see page 7).

Who might be offered EC-T?

Primary breast cancer

You may be offered EC-T chemotherapy if you have primary breast cancer. This is breast cancer that has not spread beyond the breast or lymph nodes (glands) under the arm.

Before surgery

You may have EC-T chemotherapy before surgery to shrink a larger breast cancer.

This may mean breast-conserving surgery (a lumpectomy or wide local excision) is an option, rather than a mastectomy. Breast-conserving surgery is where the cancer is removed with a margin (border) of normal breast tissue around it, also known as wide local excision or lumpectomy. A mastectomy is where all the breast tissue is removed, usually including the nipple.

Or you might have it before surgery to slow down the growth of a fast-growing breast cancer and reduce the chance of it spreading to other parts of the body.

You may be more likely to have chemotherapy before surgery if you have a certain type of breast cancer, such as inflammatory breast cancer, HER2-positive breast cancer or triple negative breast cancer.

When you have chemotherapy before surgery, it's called primary or neo-adjuvant chemotherapy.

After surgery

You may have EC-T chemotherapy after surgery to reduce the risk of breast cancer coming back in the future. It usually starts a few weeks after your operation.

If you're going to have radiotherapy, you will usually finish your course of EC-T chemotherapy first.

When chemotherapy is given after surgery, it's called adjuvant therapy.

If your breast cancer has come back

You may be offered EC-T chemotherapy if your breast cancer has:

- Come back in the chest, breast or in the skin near the original site or scars (local recurrence)
- Spread to the chest wall or skin of the breast, or the lymph nodes around the chest, neck and under the arm or breastbone, but has not spread to other areas of the body (locally advanced breast cancer)

Before you start EC-T

Before starting your treatment, a member of your treatment team will discuss how and when you'll have chemotherapy and how side effects can be managed.

You'll have blood tests and your height and weight will be measured.

You may also have tests to check your heart function, such as:

- An ECG (electrocardiogram) – a simple test that checks your heart rhythm
- An echocardiogram (echo) – an ultrasound scan of the heart
- A MUGA (multiple-gated acquisition) scan – an injection and heart scan

You should be given a 24-hour contact number or told who to contact if you feel unwell at any time during your treatment, including overnight or at the weekends.

How EC-T is given

EC-T is given into a vein (intravenously).

This will usually be through a cannula, a small tube that's inserted into a vein in the back of your hand or lower arm.

You could also have EC-T through:

- A skin-tunneled catheter (Hickman line): a tube inserted into a vein in your chest
- A peripherally inserted central catheter (PICC): a tube inserted into a vein in your arm at or above the bend in your elbow
- An implanted port: a small device with a tube that goes into a vein that's put under the skin, usually in your chest or arm

For more information about the different ways chemotherapy can be given, see our **Chemotherapy for breast cancer** booklet.

EC-T chemotherapy is given in 2 parts.

1. EC (epirubicin and cyclophosphamide)

You will usually start by having the EC.

EC is usually given once every 2 or 3 weeks, over about 1 hour.

If you have EC every 2 weeks, you'll be given injections to boost your immune system and protect against infection.

You'll have 3 or 4 sessions (cycles) of EC.

2. T (docetaxel or paclitaxel)

After you finish all the EC sessions, you will then have docetaxel or paclitaxel.

Docetaxel is usually given once every 3 weeks, over about 1 hour.

Paclitaxel can be given once every 2 weeks, over 2 to 3 hours (known as accelerated or dose-dense chemotherapy). Or it may be given weekly in lower doses over 1 hour.

You'll have 3 or 4 cycles of docetaxel or paclitaxel.

The time it takes for treatment to be given can vary depending on your individual circumstances and how you respond to chemotherapy.

Why is there a gap between each treatment?

The gap between each cycle of treatment gives your body time to recover.

Chemotherapy can reduce the amount of blood cells in your body. You might have a longer gap between cycles if your blood tests show that the number of blood cells hasn't returned to normal.

Reducing the risk of an allergic reaction

Before each treatment of EC-T, you will usually be given drugs called steroids to reduce the risk of an allergic reaction.

Take these as directed by your treatment team. Do not stop taking them without talking to your treatment team first.

If you have an allergic reaction to EC-T, it will probably happen within the first few minutes of your treatment. It's most likely the first or second time you have the drugs.

Reactions can vary from mild to severe, but severe reactions are uncommon.

You'll be monitored closely during your treatment so that any reaction can be dealt with immediately.

Let your chemotherapy nurse know if you start to feel unwell during treatment.

Symptoms of an allergic reaction include:

- Itchy red or discoloured bumps on your skin (these may be harder to see on black or brown skin)
- Swelling in your lips, tongue or throat
- Breathlessness, wheezing, a bad cough or sudden difficulty breathing

If you have a severe reaction, treatment will be stopped straight away. Your treatment team will decide when it's safe to continue your treatment.

Side effects of EC-T

Like any treatment, EC-T can cause side effects.

Everyone reacts differently to drugs and some people will have more side effects than others. These can usually be managed and those described here will not affect everyone.

If you're worried about any side effects, regardless of whether they're listed here, talk to your chemotherapy nurse or treatment team.

For more information about the side effects of chemotherapy, see our **Chemotherapy for breast cancer** booklet.

Common side effects

Effects on the blood

EC-T chemotherapy can temporarily affect the number of blood cells in the body. Blood is made up of red cells, white cells and platelets.

You'll have regular blood tests. If these show the number of blood cells is too low, your next cycle of treatment may be delayed or the dose of chemotherapy reduced.

Risk of infection

Not having enough white blood cells can increase your risk of getting an infection.

Your treatment team may give you advice on reporting signs of an infection. But generally you should contact your hospital immediately if you have any of the following:

- A high temperature (over 37.5°C) or low temperature (under 36°C)
- Suddenly feeling unwell, even with a normal temperature
- Symptoms of an infection, such as a sore throat, cough, needing to pee often or feeling cold or shivery, even if you do not have a high temperature

8 Call our helpline on **0808 800 6000**

Before starting chemotherapy, you should be given a 24-hour contact number or told who to contact if you feel unwell at any time during your treatment, including overnight or at the weekends.

You may need treatment if you get an infection.

Sometimes your treatment team may recommend injections of drugs called growth factors. This helps the body make more white blood cells to reduce your risk of infection.

Anaemia

Having too few red blood cells is called anaemia. If you feel breathless, dizzy or particularly tired, let your treatment team know.

Bruising and bleeding

EC-T can reduce the number of platelets. Platelets help the blood to clot.

If your platelets are low you may:

- Bruise more easily
- Have nosebleeds
- Notice your gums bleed when you brush your teeth
- Take longer to stop bleeding if you cut yourself

Tell your treatment team if you have any of these symptoms.

Nausea and vomiting

You may feel sick (nausea) or be sick (vomit).

You'll be given anti-sickness medication, as tablets or into a vein, before each cycle of chemotherapy.

You'll also have some anti-sickness drugs to take home.

If nausea and vomiting are affecting you, tell your treatment team.

Contact your treatment team or the 24-hour helpline number if you have severe vomiting and cannot drink any fluids without vomiting, even if it happens at the weekend or during the night.

Diarrhoea or constipation

You may have diarrhoea or constipation.

Your chemotherapy team can give you medicine to help control it and can give you information about diet.

Drinking plenty of fluids can also be helpful.

Contact your chemotherapy team if you have diarrhoea 3 or more times in 24 hours, compared to what's usual for you.

Hair loss or thinning

EC-T causes hair loss. Most people will lose all their hair, including hair on their head, eyebrows, eyelashes and body hair.

You may begin to lose your hair about 2 weeks after the first treatment, but it can happen earlier. Although hair loss is usually gradual, it can happen quickly, possibly over a couple of days.

You can try scalp cooling to stop you losing some or all of the hair on your head. This involves wearing a cold cap before, during and for 1 to 2 hours after your treatment with chemotherapy drugs. How well the cold cap works depends on the drugs and doses used, and it doesn't work for everyone. Ask your treatment team if scalp cooling is available in your hospital.

Hair loss should be temporary and in most cases your hair will begin to grow back in the weeks and months after chemotherapy has finished.

There's some evidence that docetaxel treatment may result in longer-term or permanent hair loss. But this is very rare.

For more information about hair loss, see our **Breast cancer and hair loss** booklet.

Extreme tiredness

Fatigue is extreme tiredness that does not go away with rest or sleep. It's a very common side effect of EC-T and may last for weeks or months after your treatment has finished.

If you think you have fatigue, tell your GP or treatment team. They can assess you and offer advice on how to manage your energy levels.

10 Call our helpline on **0808 800 6000**

You can find more information on our website or by calling our helpline on **0808 800 6000**. Macmillan Cancer Support produces information on coping with fatigue.

Numbness and tingling in your hands and feet

You may have pain, numbness or tingling in your hands and feet while having EC-T. This is called peripheral neuropathy and happens if docetaxel and paclitaxel affect the nerves.

Other symptoms of peripheral neuropathy can include difficulty doing “fiddly” tasks like doing up buttons, a feeling of warmth or cold in your hands and feet, or loss of balance.

Symptoms are often mild to start with and can gradually get worse.

For some people the symptoms stay mild and go away soon after treatment stops. However, for most people, the symptoms will gradually improve over the weeks and months after treatment has finished.

Symptoms may take longer to improve and, in some cases, may not go away completely.

If you have symptoms of peripheral neuropathy, tell your treatment team so they can monitor them.

For more information about peripheral neuropathy, see our **Chemotherapy for breast cancer** booklet.

Reaction at the injection site

You might get pain, redness, discolouration or swelling where the small plastic tube (cannula) has been inserted or anywhere along the vein, during or after treatment.

If chemotherapy drugs leak out of the vein they’re being given in (called extravasation), it can damage the surrounding tissue.

Tell your treatment team immediately if you have pain, stinging or a burning feeling around the cannula while the drug is being given.

After a few weeks you may notice tenderness, darkening and hardening around where the cannula was inserted. This should fade over time.

Bladder irritation and pink or red urine

Chemotherapy drugs (particularly cyclophosphamide) can irritate the lining of the bladder.

It's important to drink plenty of fluids around the time you have your treatment.

Try to pee regularly, as soon as you feel the urge. Tell your treatment team if you notice:

- Blood in your urine
- Irritation, burning or stinging when you pee

Epirubicin can cause your urine to become pink or red for a couple of days. This is because of the colour of the drug and is completely normal.

Sore mouth

Looking after your mouth, including your teeth and gums, is very important during treatment.

You may be given mouthwash to try to reduce soreness and stop mouth ulcers developing.

It's a good idea to use a small, soft toothbrush during this time.

See your dentist for a check-up before treatment with chemotherapy begins. Avoid dental work during treatment if possible.

If you do need to have dental work during treatment, talk with your treatment team about the best time to have this.

If you're having difficulty registering with a dentist, let your treatment team know.

Taste changes

Your taste may change while you're having EC-T. Some food may taste different, for example more salty, bitter or metallic. You may no longer enjoy some foods you used to like.

If this is the case, speak to your treatment team. They may suggest ways to manage this.

Your taste should return to normal once your treatment has finished.

Loss of appetite

You may lose your appetite while having EC-T.

Talk to your treatment team or breast care nurse about this. They can give you advice and information to help deal with loss of appetite and may refer you to a dietitian if needed.

See our booklet **Diet and breast cancer** for more information on dealing with changes to your taste and appetite during treatment.

Effects on your concentration

Treatment can affect your ability to concentrate and make you more forgetful.

This is sometimes called “chemo brain” or “chemo fog”, but your treatment team may call it cognitive impairment. It usually improves over time after treatment has finished.

You can read more information about this on our website breastcancernow.org

Menopausal symptoms

EC-T may cause menopausal symptoms if you haven't already been through the menopause. This is because it affects the ovaries, which produce the hormone oestrogen.

Your periods may stop or become irregular during chemotherapy. Whether your periods return will depend on many things, including other health conditions, the type of drugs used, the dose given, and your age.

Other common menopausal symptoms can include:

- Hot flushes and night sweats
- Mood changes
- Joint aches and pains
- Vaginal dryness
- Changes to your sex drive

You can talk to your breast care nurse or treatment team about ways of coping with any of these symptoms. You can also find tips in our **Menopausal symptoms and breast cancer** booklet.

Painful muscles and joints

Your muscles or joints may ache or become painful 2 to 3 days after you have treatment, particularly docetaxel or paclitaxel.

This usually improves after a few days. However, it can be very painful and you may need to take mild pain relief such as paracetamol or anti-inflammatory drugs such as ibuprofen. It's a good idea to have some of these available before starting your treatment just in case you need them.

You can find more information about joint and muscle pain during treatment on our website **breastcancernow.org**

Fluid retention

You may develop a build-up of fluid in the body (oedema), particularly when having docetaxel or paclitaxel. It may cause swollen ankles and legs and shortness of breath. This can take a few weeks to get better.

You'll usually be given steroid drugs to prevent an allergic reaction, which will also help reduce the chance of fluid building up.

Weight gain

You may put on weight, but you'll usually lose it again once treatment finishes. This can vary from person to person and may take up to several months. Physical activity and eating a healthy diet may help with this.

For more information on healthy eating, see our booklet **Diet and breast cancer**.

Less common side effects

Heart changes

Epirubicin can affect your heart and blood pressure. This is usually temporary but for a small number of people it may be permanent.

Before you start chemotherapy, your treatment team may arrange a heart (cardiac) function test (see page 4).

You will also be carefully monitored during your treatment.

If you have pain or tightness in your chest, feel breathless or notice changes to your heartbeat at any time during or after treatment, tell your treatment team straight away.

These symptoms can be caused by other conditions but it's important to get them checked.

Sore eyes and runny nose

EC-T can cause a runny nose. It can also cause soreness and a gritty feeling in your eyes, or your eyes may water.

If you have sore eyes, you may be given eye drops to relieve the soreness.

Headaches

EC-T can cause headaches. These are usually mild and can be relieved with simple pain relief such as paracetamol.

If your headache is severe, speak to your treatment team.

Skin changes

EC-T can make your skin dry, more sensitive or prone to reactions.

If you develop a rash tell your treatment team as soon as possible.

Your skin may be more sensitive to the sun, so use a high factor (SPF) sun cream.

Sore hands and feet

You may develop soreness or redness on the palms of your hands and soles of your feet. This is called palmar-plantar or hand-foot syndrome.

Redness can be harder to see on black or brown skin.

Your treatment team or GP can prescribe creams or medication to treat hand-foot syndrome.

Nail changes

Chemotherapy may cause changes to the appearance of your nails. This can be a change in the nail colour or texture, such as ridges forming. Nails can also become more brittle and cracked.

Occasionally the nail may lift off the nail bed and fall out, but it will grow back.

As you're more at risk of infection while having chemotherapy, tell your treatment team about any signs of infection such as redness, heat, swelling or pain in or under your fingernails and toenails.

Rare side effects

Damage to the lungs

Docetaxel and paclitaxel can affect the lungs.

Contact your treatment team straight away if you have:

- Shortness of breath
- A cough, with or without a high temperature
- Any new or worsening breathing problems, such as chest tightness or wheezing

Liver or kidney changes

EC-T can cause changes to the way the kidneys or liver work.

Changes are usually minimal and go back to normal when treatment is finished.

You'll have regular blood tests to monitor your liver and kidneys throughout your chemotherapy.

Another cancer in the future

There's a small risk of developing a rare type of blood cancer in the future. However, the risk is very low.

The benefits of having chemotherapy to treat your breast cancer will outweigh this very small risk.

Blood clots

People with breast cancer have a higher risk of blood clots. Having EC-T also increases the risk of blood clots such as a DVT (deep vein thrombosis).

If you have a DVT, there's a risk part of the blood clot could break away and travel to the lung. This is known as a pulmonary embolism (PE).

Blood clots can be life-threatening and should be treated quickly.

Contact your treatment team or go to your local A&E department straight away if you have any of the following symptoms:

- Pain in your arm or leg
- Redness/discolouration of the skin of the arm or leg
- Heat and swelling of the arm or leg
- Swelling, redness or tenderness where a central line is inserted to give chemotherapy, for example in the arm, chest area or up into the neck
- Shortness of breath that comes on suddenly
- Pain or tightness in the chest
- Unexplained cough or coughing up blood

Some symptoms may look different on different skin tones.

Sex, contraception and pregnancy

You can still have sex during treatment. It's thought chemotherapy drugs cannot pass into vaginal fluids or semen, but this cannot be completely ruled out.

Most treatment teams will advise using barrier methods of contraception, such as condoms or female condoms, during treatment and for a few days after chemotherapy is given.

You're advised not to become pregnant while having treatment because EC-T can harm a developing baby. If you have not been through the menopause, talk to your team about the most suitable method of contraception for you. It's still possible to become pregnant even if your periods are irregular or have stopped.

EC-T can be safely given to pregnant women with breast cancer if necessary, after the first 12 weeks of pregnancy.

Chemotherapy can affect how you feel about sex and intimacy. You may not feel like being intimate when you're dealing with treatment, or you may find intimacy helps you feel more normal. Everyone's reaction will be different.

You can find more information about how breast cancer and treatment can affect intimacy, and tips for managing this, in our booklet **Your body, intimacy and sex**.

Fertility

EC-T chemotherapy causes changes in the ovaries, which can affect your ability to become pregnant (fertility). How likely you are to lose this ability (become infertile) also depends on things like whether you have had chemotherapy in the past, other health conditions and your age.

Many women stop having periods during chemotherapy, but this may be temporary.

If you're aged around 40 and over, your periods are less likely to return after you've finished chemotherapy than if you're under 40.

In men, EC-T chemotherapy can affect sperm production which can lead to temporary or permanent infertility.

Conversations about fertility can be hard, especially if you weren't expecting to think about it at this stage. It's important to discuss any fertility concerns with your treatment team before you begin your treatment.

Your treatment team should offer you a referral to a fertility specialist to discuss the possibility of preserving your fertility.

For more information, see our **Fertility, pregnancy and breast cancer treatment** booklet.

Vaccinations and travel

Travel vaccinations

If you're planning a holiday or need to travel overseas, check with your treatment team first.

You should not have any live vaccines while you're having chemotherapy.

Live vaccines include:

- Mumps
- Measles
- Rubella (German measles)
- Polio
- BCG (tuberculosis)
- Yellow fever

Live vaccines contain a small amount of live virus or bacteria. If you have a weakened immune system, which you may do during chemotherapy, they could be harmful.

It's safe to have these vaccinations 6 months after your treatment finishes. Talk to your GP or treatment team before having any vaccinations.

If anyone you have close contact with needs to have a live vaccine, speak to your treatment team or GP. They can advise what precautions you may need to take depending on the vaccination.

COVID-19 vaccination

If you're having chemotherapy or targeted therapies, you're advised to speak to your treatment team about the best time to have a COVID-19 vaccination.

Flu vaccination

Anyone at risk of a weakened immune system, and therefore more prone to infection, should have the flu vaccine. This includes people due to have, or already having, chemotherapy.

The flu vaccine is not a live vaccine so does not contain any active viruses.

Talk to your chemotherapy team or breast care nurse about the best time to have your flu jab.

Further support

Your treatment team and breast care nurse can help with any questions you have. You can also speak to our specialist nurses by calling our free helpline **0808 800 6000** or visiting our website breastcancernow.org

You can find people going through treatment at the same time as you on the monthly chemotherapy threads on our online forum forum.breastcancernow.org

You can also speak to someone else who has had chemotherapy for primary breast cancer through our Someone Like Me service. Visit our website for more information.

We're Breast Cancer Now, the research and support charity. However you're experiencing breast cancer, we're here.

Life-changing support

Whoever you are, and whatever your experience of breast cancer, our free services are here. Whether you're worried about breast cancer, dealing with a diagnosis, working out life with or beyond treatment – or someone you love is.

World-class research

We support over 290 of the brightest minds in breast cancer research. They're discovering how to prevent breast cancer, live well with the disease, and save lives. Every day, they get closer to the next breakthrough.

Change-making campaigns

We fight for the best possible treatment, services and care for everyone affected by breast cancer, alongside thousands of dedicated campaigners.

Could you help?

We don't get any government or NHS funding for our support services or health information. So, we rely on donations and gifts in wills to make our vital work happen. If you'd like to support us, go to breastcancernow.org/give

ABOUT THIS BOOKLET

EC-T chemotherapy was written by Breast Cancer Now's clinical specialists, and reviewed by healthcare professionals and people affected by breast cancer.



For a full list of the sources we used to research it:
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We're here

Information you can trust, support you can count on

Whatever breast cancer brings, we're here for you.

Whether you're looking for information about breast cancer or want to speak to someone who understands, you can rely on us.

Call **0808 800 6000** to talk things through with our helpline nurses.

Visit **breastcancernow.org** for reliable breast cancer information.

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Patient Information Forum

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