1. What is CMF chemotherapy?
CMF is a combination of three chemotherapy drugs.

It takes its name from the initials of these drugs:

- cyclophosphamide
- methotrexate
- 5 fluorouracil (also known as 5FU)

You may also hear of E-CMF, which is a combination of these three drugs as well as epirubicin. We have separate information on E-CMF chemotherapy.

Before starting your treatment many hospitals will arrange a chemotherapy information session. At this appointment a nurse will discuss how and when your chemotherapy will be given and how side effects can be managed. Contact numbers will also be given so you
2. How does CMF work?
CMF chemotherapy destroys cancer cells by interfering with their ability to divide and grow. Different chemotherapy drugs work in different ways and interfere with the cancer cells at different times in their growth. This is why a combination of drugs is often used. CMF chemotherapy is a systemic treatment, which means it affects cells throughout the body.

3. When might CMF be prescribed?
CMF can be used to treat primary breast cancer – breast cancer that has not spread beyond the breast or the lymph nodes (glands) under the arm. Chemotherapy is given to reduce the risk of breast cancer returning or spreading.

CMF is usually given a few weeks after surgery, known as adjuvant (additional) therapy. If you’re going to have radiotherapy and/or hormone therapy, you’ll complete your course of CMF first.

It may also be given to people with secondary breast cancer (breast cancer that has spread to other parts of the body).

4. How is CMF given?
CMF is given as a drip into a vein (intravenously) in the hand or arm, although there are other ways of giving it depending on factors such as how easy it is for chemotherapy staff to find suitable veins, and your preferences.

Cyclophosphamide can be given separately as a tablet.

Find out more about the different ways chemotherapy is given.
5. How long does treatment take?

You'll normally be given your treatment at hospital as an outpatient or day case, which means you'll be able to go home on the same day. Although it only takes about an hour, you're likely to be at the hospital for longer than this.

Chemotherapy is commonly given as a series of treatments with a break between each treatment to give your body time to recover from any short-term side effects. The treatment and period of time before the next one starts is called a cycle.

CMF is normally given every three or four weeks. You may have four or six cycles of treatment. The total length of treatment is usually four to six months.

6. Side effects of CMF

Common side effects

Like any treatment, CMF can cause side effects. Everyone reacts differently to drugs and some people have more side effects than others. These can usually be controlled and those described here will not affect everyone.

If you're worried about any side effects, even if they're not listed here, talk to your chemotherapy nurse or cancer specialist (oncologist).

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 at night or at the weekends.

Immediate side effects

While the drug cyclophosphamide is being injected you may feel hot or flushed and slightly dizzy, and have an itchy nose or a metallic taste in your mouth. These feelings usually go away when the injection is finished, but tell your chemotherapy nurse if you experience any of them. Some people find sucking a boiled sweet helps.
Effects on the blood

CMF chemotherapy can temporarily affect the number of healthy blood cells in the body.

You’ll have regular blood tests to check your blood count. If the number of blood cells is too low, your next course of treatment may be delayed or the dose of chemotherapy reduced.

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

Contact your hospital immediately if at any time:

• you have a high temperature (over 37.5°C) or low temperature (under 36°C), or whatever your chemotherapy team has advised
• you suddenly feel unwell, even with a normal temperature
• you have any symptoms of an infection, for example a sore throat, a cough, a need to pass urine frequently or feeling cold and/or shivery

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

You may also bruise more easily, have nosebleeds or your gums may bleed when you brush your teeth. Tell your specialist team if you have any of these symptoms.

Hair thinning

You may notice that your hair thins during your treatment. On very rare occasions you may lose all of your hair. This will grow back once treatment is finished. Your hair is likely to thin more if you are having cyclophosphamide injections rather than tablets.

Find out more about hair loss and looking after your hair during and after treatment.

Nausea and vomiting

You may experience nausea (feeling sick) and vomiting (being sick), but many people will not actually be sick. You’ll be given anti-sickness medication by mouth or intravenously before the chemotherapy is given, and you’ll be prescribed anti-sickness drugs to take home to reduce nausea or stop it happening.

Diarrhoea or constipation

You may have diarrhoea or constipation but your chemotherapy team or GP (local doctor) can prescribe medicine to help control it. Contact your chemotherapy team if you have four or more episodes of diarrhoea within a 24-hour period.
Sore mouth and taste changes
You’ll be given mouthwash to try to reduce soreness of the mouth and gums, and to try to stop mouth ulcers developing. Good mouth hygiene is very important during treatment. It’s advisable to see your dentist for a dental check-up before chemotherapy begins, but avoid dental treatment during chemotherapy.

Your taste may change, making foods taste bland or different. Your taste should return to normal once your treatment has finished, although for some people taste changes can last after treatment.

Read our tips on dealing with taste changes during chemotherapy.

Fatigue (extreme tiredness)
Fatigue is extreme tiredness or exhaustion that doesn’t go away with rest or sleep. It’s common to have fatigue during your treatment. For some people, fatigue can last for several weeks or even months after the treatment has finished, but your energy levels will gradually return.

There are different ways of coping with fatigue.

Bladder irritation
Chemotherapy drugs (particularly cyclophosphamide) can irritate the lining of the bladder. Drink plenty of fluids around the time you have your treatment, and try to empty your bladder regularly, as soon as you feel the urge. Tell your specialist team if you notice any irritation or a burning/stinging sensation when passing urine.

Effects on fertility
CMF causes changes in the ovaries, which may lead to infertility in women who haven’t been through the menopause. The likelihood of you becoming infertile will also depend on whether you have had chemotherapy in the past and your age.

If you’re concerned about your fertility, it’s important to talk to your specialist team before treatment begins to discuss options for preserving fertility.

Menopausal symptoms
Sometimes CMF can cause women who haven’t been through the menopause (pre-menopausal) to experience menopausal symptoms. This is because it affects their ovaries, which produce oestrogen.
Common symptoms can include:

- hot flushes and night sweats
- mood changes
- joint aches and pains
- vaginal dryness

**Effects on your concentration (cognitive impairment)**

Your ability to concentrate or think clearly can also be affected, which can be very frustrating. This is sometimes referred to as ‘chemo-brain’ or ‘chemo-fog’. It usually improves over time after treatment has finished.

**Sore eyes**

Your eyes may feel sore or gritty. Sometimes eye drops will be prescribed to ease discomfort. Your eyes may also water. This usually improves over time. Let your specialist team know about any eye problems you are having.

**Less common side effects of CMF**

**Allergic reaction**

If you have an allergic reaction to CMF, it will probably happen within the first few minutes of your treatment and 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 so that any reaction can be dealt with immediately.

Symptoms of an allergic reaction include:

- flushing
- skin rash
- itching
- back pain
- shortness of breath
- faintness
- fever or chills

If you have a severe reaction, treatment will be stopped immediately. If you have a reaction, medication can be given before future treatments to reduce the risk of further reactions.
Skin reactions
CMF can cause your skin to become red and sore. Let your specialist team know if this happens.

Your skin may darken due to extra pigment (colour) being produced. Any darkening usually returns to normal a few months after the treatment ends.

During CMF treatment, and for several months afterwards, your skin will be more sensitive. You'll be more likely to get sunburnt so wear sunscreen with a high sun protection (SPF) if you’re out in the sun.

Heart changes
A small number of patients having 5-fluorouracil (5FU) can experience chest pain and tightening across the centre of the chest, but this is rare. However, chest pain can have many causes. If you experience any symptoms like this let your specialist team know straight away.

7. Blood clots
People with breast cancer have a higher risk of blood clots. Their risk is higher because of the cancer itself and some treatments for breast cancer. Having CMF increases the risk of blood clots such as deep vein thrombosis (DVT). People with a DVT are at risk of developing a pulmonary embolism. This is when part of the blood clot breaks away and travels to the lung.

If the cancer has spread to other parts of the body (secondary breast cancer), this also increases the risk.

Blood clots can be harmful but are treatable so it's important to report symptoms as soon as possible.

If you experience any of the following symptoms contact your local A&E department, GP or specialist team straight away:

- pain, redness/discolouration, heat and swelling of the calf, leg or thigh
- 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
• tightness in the chest
• unexplained cough (may cough up blood)

Find out more about blood clots.

8. Sex, contraception and pregnancy

You can still have sex during treatment. It’s not known if chemotherapy drugs can pass into vaginal fluids (or semen). Most hospital specialists advise using barrier methods of contraception, such as condoms, for a few days after chemotherapy is given.

Having CMF while pregnant may be harmful to a developing baby. Some women can still become pregnant even if their periods are irregular or have stopped, so effective barrier contraception such as a condom should be used.

Find out more about how breast cancer and its treatment can affect sex and intimacy and read our tips on how to manage these changes.

9. Vaccinations

You shouldn’t have any live vaccines while you’re having chemotherapy. Live vaccines include measles, rubella (German measles), polio, BCG (tuberculosis), shingles and 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 vaccines six months after your chemotherapy finishes. Talk to your GP or specialist team before having any vaccinations.

If someone you live with needs to have a live vaccine speak to your specialist team or GP. They can advise what precautions you may need to take depending on the 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 doesn't contain any active viruses. If you’re already having chemotherapy, talk to your chemotherapy team or breast care nurse about the best time to have your flu jab.

10. Further support

Your chemotherapy team and breast care nurse can help with any questions you have. You can also call us free on 0808 800 6000 for information and support.

On our online Forum, you can find people going through treatment at the same time as you on the monthly chemotherapy threads.

You can also speak to someone who has had chemotherapy through our Someone Like Me service.

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Next planned review begins 2020