

FERTILITY, PREGNANCY AND BREAST CANCER



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Steered by our world-class research and powered by our life-changing care, Breast Cancer Now is here for anyone affected by breast cancer, the whole way through, providing support for today and hope for the future.

Our breast care nurses, expertly trained staff and volunteers, and award-winning information is all here to make sure anyone diagnosed with breast cancer gets the support they need to help them to live well with the physical and emotional impact of the disease.

For breast cancer care, support and information, call us free on **0808 800 6000** or visit **[breastcancernow.org](https://www.breastcancernow.org)**

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INTRODUCTION

Having breast cancer treatment may mean you have to think about whether you want to have children in the future. This is because some treatments, such as chemotherapy, can affect a woman's chances of becoming pregnant. While your main concern is probably treating your breast cancer, if having children of your own is important then fertility preservation can be offered before you start breast cancer treatment.

Fertility preservation treatments are ways of helping women with breast cancer have a higher chance of becoming pregnant and having a child in the future. Some women starting cancer treatment will know for sure whether or not they want to try fertility preservation. Others are uncertain about fertility preservation and which option is best for them.

Men who are treated for breast cancer may also want to discuss fertility preservation options. See our website for further information about this.

To support you in making a decision, this booklet has information to help you:

- Learn more about the different fertility preservation options
- Consider what's important for you now and in the future
- Talk with your breast cancer and fertility specialists about the pros and cons of each fertility preservation option

It can be hard to make a decision about whether to have fertility preservation and you may feel under pressure to decide quickly. It can be helpful to talk to someone about how you feel. You'll find more information about the support available in the 'Finding support' section on page 35. You can also call our free Helpline to speak with our nurses on **0808 800 6000**. You may also find it useful to read our booklet **Breast cancer in younger women**.

Some of the options described in this booklet are not suitable for all women and treatments may not be available in every fertility clinic. The Human Fertilisation and Embryology Authority (HFEA) has information about fertility clinics, fertility preservation treatments and fertility success rates in your area on their website [hfea.gov.uk](https://www.hfea.gov.uk)

'If you want to have a baby and have a chance to preserve your fertility, do it. Otherwise you may always regret it as sometimes fertility does not return after treatment.'

Marzena

'I was told on the day of the initial diagnosis that there could be effects on my fertility, but there was so much information to take in that day that I didn't take it in.'

Laura

National Institute for Health and Care Excellence (NICE) guidelines

NICE is an independent organisation that provides evidence-based guidance on effective ways to prevent, diagnose and treat ill health.

NICE guidance only applies to England; their breast cancer guidance was updated in 2018. Assessment and treatment may be different in Wales, Scotland or Northern Ireland and your treatment team can tell you more about this.

NICE guidelines for assessing and treating people with fertility issues recommend that women with breast cancer should:

- Have the chance to discuss the impact of cancer and its treatment on future fertility with their cancer team at the time of diagnosis
- Be offered appropriate procedures to preserve fertility if their breast cancer treatment may lead to loss of fertility, as long as they're well enough to have the procedures, it will not worsen their condition and there's enough time before cancer treatment begins

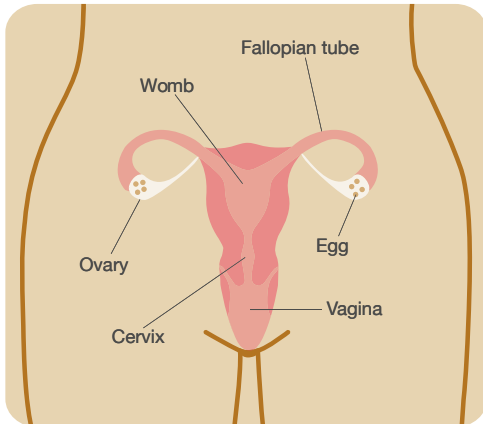
The usual conditions for deciding whether someone can have fertility treatment should not apply to people with cancer.

If you're not offered these choices, talk to your GP. If you're still not happy, you can make a complaint to your local Clinical Commissioning Group (CCG) as individual funding requests can be made. You can find your local CCG on the NHS website [nhs.uk](https://www.nhs.uk)

If you're unhappy with the decision from the CCG you can complain to the independent Parliamentary and Health Service Ombudsman [ombudsman.org.uk](https://www.ombudsman.org.uk)

FERTILITY IN WOMEN

To understand how breast cancer treatments might affect fertility, it can be useful to know some basic facts about fertility in women.



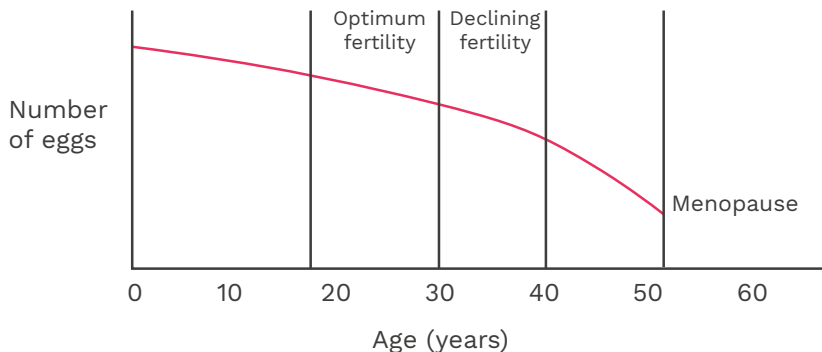
The female reproductive system

Women are born with a set number of eggs in their ovaries (you do not produce new ones). By the time a woman reaches puberty, the number of eggs she has will have already decreased, and the number continues to decrease as she gets older. Generally, the quality of the eggs also reduces as a woman ages, which can affect fertility.

At least one egg is released each month from the ovaries. Pregnancy occurs if the egg is fertilised by a man's sperm and then implants itself in the womb. If an egg is not fertilised, you have a period.

The ovaries stop releasing eggs and monthly periods stop when a woman reaches the menopause. On average, most women reach the menopause around the age of 51, though studies show that women with an altered breast cancer gene (BRCA) will experience an earlier menopause.

The graph below shows how the average woman's fertility declines with age until she reaches the menopause. The rate at which this happens will vary from person to person, and depend on what treatment you've had.



Graph showing decline of fertility with age.

Source: mskcc.org

THINGS TO CONSIDER AT DIAGNOSIS AND BEFORE BREAST CANCER TREATMENT BEGINS

How breast cancer treatments can affect fertility

Several treatments for breast cancer can have an effect on your future fertility.

Treatment	Things that may change	Things to consider
Chemotherapy	May damage the ovaries, reducing the number and quality of eggs. May temporarily or permanently stop periods.	Type and dosage of drugs used, your age and your pre-treatment fertility.
Hormone therapy	May cause periods to become irregular or stop while being taken. Periods will generally start again when no longer taking hormone therapy. This could take several months.	Recommended for five–ten years. You will be advised not to get pregnant while taking hormone therapy.
Removal of ovaries	You will not be able to become pregnant unless eggs or embryos have been frozen before the ovaries are removed or you choose to use donor eggs or embryos.	

Chemotherapy

Chemotherapy is a treatment that destroys cancer cells using anti-cancer drugs. It works by interfering with the cancer cells' ability to divide and grow. Chemotherapy affects cells throughout the body and can damage the ovaries, reducing the number and quality of eggs.

The likelihood of you having fertility problems in the future depends on the type of drugs used, the dose given, your age and what your fertility was like before cancer treatment.

The chemotherapy drugs most likely to affect your ovaries are a group called 'alkylating agents'. One of these (cyclophosphamide) is commonly used in combination with other chemotherapy drugs to treat breast cancer.

The effect of some other chemotherapy drugs, such as taxanes (docetaxel and paclitaxel), on fertility has not been as widely studied, but evidence suggests that they'll also affect fertility.

Chemotherapy can cause your periods to stop. This may be temporary or permanent. In general the younger you are when having treatment, particularly if you're under 35, the more likely it is that your periods will return. Women over 35 are more likely to lose their fertility after chemotherapy.

It's possible to stop having periods temporarily during treatment and to start having them again months or occasionally even a few years after treatment has finished.

Even if your periods return after chemotherapy, the menopause is likely to happen sooner (up to 5–10 years earlier) than it would have done if you had not had chemotherapy. This may mean you have a shorter time to try to get pregnant.

If your periods return it does not always mean you'll be able to get pregnant, so it's important to speak to your treatment team if you have any concerns.

For more information on chemotherapy, see our **Chemotherapy for breast cancer** booklet.

Hormone therapy

Some breast cancers are stimulated by the hormone oestrogen. This means that oestrogen in the body helps the cancer cells to grow. This type of breast cancer is called oestrogen receptor positive (ER+). Hormone therapies block or stop the effect of oestrogen on breast cancer cells. They're used to lower the chance of the cancer coming back.

Some of the most commonly used hormone therapy drugs for pre-menopausal women with breast cancer include:

- Tamoxifen
- Goserelin (Zoladex)
- Aromatase inhibitors (anastrozole, letrozole and exemestane) used alongside goserelin

In most pre-menopausal women who take tamoxifen, the ovaries continue to work. When you start taking tamoxifen it may stimulate ovulation (the release of the egg from the ovary), and could make you more fertile. However, getting pregnant while on tamoxifen is not recommended.

For some women, continued use of tamoxifen means periods become less regular, lighter or stop altogether. Generally, your periods will start again once you stop taking tamoxifen as long as you have not gone through the menopause naturally while taking the drug. However, it may take four to five months for your periods to become regular again.

Goserelin switches off the production of oestrogen from the ovaries. It's often combined with other hormone therapies used to treat breast cancer, such as tamoxifen or aromatase inhibitors.

Hormone therapy is usually taken for five years or longer. While you're taking hormone therapy you'll be advised not to get pregnant as it may harm a developing baby. Even if your periods stop while you're taking hormone therapy you could still get pregnant.

Due to the length of time taking hormone therapy, the side effects may hide the signs of a natural menopause. It may only be when you finish taking it that you realise you have started or been through the menopause.

If you want to have children and you're in your 30s or early 40s, taking hormone therapy for five years or more may be an issue you want to discuss with your treatment team. An international study called POSITIVE (Pregnancy Outcome and Safety of Interrupting Therapy for Women With Endocrine Responsive Breast Cancer) is looking into the safety of interrupting hormone therapy to try to get pregnant. This trial is not currently recruiting in the UK.

For further information, see our individual hormone therapy booklets.

Removal of the ovaries (oophorectomy)

Some women have their ovaries removed as part of their breast cancer treatment, or as risk-reducing treatment if they have inherited an altered gene, such as BRCA1 or BRCA2 (which can cause both breast and ovarian cancers). If you have this operation you cannot get pregnant (unless eggs or embryos have been frozen before surgery), but you can consider egg or embryo donation in the future. See 'Egg donation' on page 33 for more information.

Discussing fertility before breast cancer treatment begins

'Taking time to process information and make decisions is really crucial.'

Gail

'If you want...

...to have a baby after your breast cancer treatment then you need to make that clear to your medical team right from the very start. If they do not ask you about it then make sure you ask them.'

Liz

Some breast cancer treatments can affect your ability to become pregnant in the future, see 'How breast cancer treatments can affect fertility' on page 11.

It's important to discuss any fertility concerns with your treatment team before you begin your breast cancer treatment.

Here are some questions you might want to ask your treatment team:

- How might my cancer treatment affect my future fertility?
- Will having treatment to preserve my fertility delay my cancer treatment?
- Is it safe for me to have fertility drugs?
- Would a future pregnancy increase the chances of the cancer returning?
- Could my cancer treatment affect the health of any children I might have in the future?
- Assuming I can still have children, how long after treatment should I wait to try to conceive?

Your treatment team should offer you a referral to a fertility specialist to discuss the option of preserving your fertility. This should be as soon as possible after diagnosis to prevent any delays in your treatment.

Take time to think about questions you want to ask ahead of your appointment with the fertility specialist. If you have a partner, it's helpful to include them in this discussion. It's important to make the right decision for you.

Here are some questions you might want to ask your fertility specialist:

- Can I check if I'm fertile before my breast cancer treatment starts?
- How will my age affect my fertility?
- What are my chances of getting pregnant after treatment?
- How long after treatment will I have to wait to find out if I'm still fertile?
- How can I try to preserve my fertility?
- Will I be able to have fertility treatment on the NHS (including embryo or egg storage)? If not, how much will it cost?
- What does fertility treatment involve?
- How successful are the different methods of preserving fertility?
- Can I use a sperm donor?

If you would like to see a fertility specialist and this has not been offered, ask your specialist or breast care nurse as soon as possible after your diagnosis to reduce any possible delays to your treatment. You can ask to be referred to a fertility clinic with experience in helping women having cancer treatment.

'I would urge anyone...

...facing breast cancer to just ask. It's OK to look to life beyond treatment. It's OK to take hormones in a controlled environment for a limited time. It's OK to want to be a mother. And, it's OK to not feel confident or OK about the process. It's big. It's frightening. But ask me if I'd do it again and I'd say absolutely!'

Jackie

Fertility preservation options before and during breast cancer treatment

A number of options are available that may preserve your fertility and increase the chance of you having your own children in the future.

Your options include:

- No fertility preservation and start cancer treatment straightaway
- Freezing – method of preserving eggs, embryos or ovarian tissue before starting cancer treatment
- Ovarian suppression – a possible method of protecting the ovaries during chemotherapy

If you want to discuss ways of trying to preserve your fertility, talk to your oncologist and fertility specialist before your breast cancer treatment begins.

Deciding if you want to have fertility preservation

Before you start your breast cancer treatment you'll need to decide if you want to try to preserve your fertility, or if you'd prefer not to have any fertility treatment. You may want to consider what you like and what worries you about each option. Not all younger women who are treated for breast cancer will have fertility problems in the future.

Some women know what they want to do, while others have a harder time making a decision. Your religious or moral beliefs may also affect how you feel about fertility preservation. It's important to choose what's right for you.

Talking to a fertility specialist and finding out your options can help you come to a decision. It might also help to talk this through with your partner (if you have one), breast cancer treatment team, family and friends. You should also be offered counselling support at your fertility centre.

A few women consider declining chemotherapy if they're concerned about their fertility. Talk to your consultant about the benefit of having chemotherapy or the effects that different chemotherapy combinations may have on your fertility.

Possible risks

You may want to ask your fertility specialist what the risks are with each fertility preservation option. Many children have been born from stored embryos and there does not seem to be any health risk to the child. We do not know yet if there is any risk with egg and ovarian tissue freezing as these are fairly new techniques, but specialists believe any risk is likely to be very small.

Fertility preservation options before breast cancer treatment

- No fertility preservation
- Freezing options:
 - Egg
 - Embryo
 - Ovarian tissue*
- Ovarian suppression†‡

* Early stage of research

† Research still ongoing into effectiveness

‡ Ovarian suppression can be used during chemotherapy

Currently, there's no evidence that fertility preservation increases the risk of breast cancer coming back, but research in this area is ongoing.

Pre-implantation genetic diagnosis (PGD)

Women who are known to have inherited an altered gene that increases the risk of breast cancer and are concerned about passing this on to future children may want to talk to their genetic counsellor about the possibility of pre-implantation genetic diagnosis (PGD). This involves going through an IVF cycle and checking the embryos for the inherited altered gene before freezing them. Only the embryos that are not affected by the altered breast cancer gene are used. This procedure is only offered in some fertility clinics. For more information about inherited breast cancer see our booklet **Family history, genes and breast cancer**.

No fertility preservation ('waiting and seeing')

Some younger women do not want children or choose to start their cancer treatment and wait to see if fertility returns when treatment is over. Very young women who are more likely to maintain their fertility after breast cancer treatment may want to discuss this option with their treatment team. Your fertility specialist can do some blood tests (anti-mullerian hormone – AMH) and an ultrasound scan to assess your fertility before your breast cancer treatment begins. They can also monitor your fertility after treatment.

Fertility preservation procedures

Stimulating the ovaries to produce more eggs

Fertility preservation involves taking drugs to boost your egg production and help the eggs mature. This is known as ovarian stimulation. Collecting more eggs will increase the chances of pregnancy in the future.

Ovarian stimulation can occasionally delay chemotherapy for a short time. However, new fertility practices mean that preservation can be started at any time during a woman's menstrual cycle (called a 'random start'), and chemotherapy can usually go ahead as planned or with a minimal delay.

You'll need to give yourself daily injections of hormones for about 10–12 days to help your ovaries produce more eggs than normal. You'll be taught how to do this.

The hormone injections increase the amount of oestrogen in your body. Some women worry about the effect this might have on their breast cancer. Initial studies have shown that ovarian stimulation does not seem to affect the growth of breast cancer cells, but further research is needed before this can be proven.

Using breast cancer drugs, such as letrozole or tamoxifen, alongside hormone injections increases the number of eggs produced and lowers the level of oestrogen in the body during fertility treatment.

You may have a transvaginal ultrasound scan (where a scan probe is gently placed inside the vagina) to check your ovaries and a blood test. About 34–38 hours before your eggs are due to be collected you'll have a final hormone injection to help mature your eggs.

When the eggs are ready, they'll be collected through a fine needle passed through the wall of the vagina up to the ovaries. This is done under sedation or general anaesthetic.

Once ovarian stimulation is complete, and if successful, your eggs or embryos (eggs that have been fertilised with sperm) can be frozen.

Not all of the freezing procedures described are available in every fertility clinic, and success rates can vary. Some procedures may not be available on the NHS and there may be costs involved, see 'Will I have to pay for fertility treatment?' on page 27 for more information.

None of the methods for preserving fertility can guarantee you'll get pregnant and have a baby after breast cancer treatment. However, lots of research into methods of preserving fertility is being carried out, and this is leading to improvements in the procedures currently available.

You can find out more about the availability of fertility procedures on the HFEA website [hfea.gov.uk](https://www.hfea.gov.uk)

It was all very overwhelming, but necessary. And I'm glad I've done it because I have that safety net.'

Kerry

Egg freezing

If you do not have a partner and do not want to use donor sperm, you can freeze your eggs.

Frozen eggs can be stored for 10 years or longer. They can then be thawed and fertilised with sperm from a partner or donor before being implanted in the womb when you want to try to get pregnant.

This is a very delicate procedure as eggs are easily damaged during the freezing and thawing process. A method of freezing called vitrification has led to fewer eggs being damaged, but not all fertility clinics currently offer this technique.

Although egg freezing is becoming more successful, the current success rate is lower than when frozen embryos are used. The availability of egg freezing varies across the UK. HFEA's website lists the current IVF success rates per age group as well as an in-depth egg freezing guide.

Embryo freezing – in vitro fertilisation (IVF)

IVF involves removing eggs from a woman's ovaries and fertilising them with sperm in a laboratory to create embryos.

The embryos continue to grow in the laboratory for one to six days before being frozen for future use. They can be frozen and stored for 10 years or longer before being implanted in the womb.

Once embryos are created using your eggs and your partner's sperm, they legally belong to both of you. You'll both need to give consent to store and use any embryos. If you separate in the future and your partner withdraws his consent, you'll not be able to use the embryos and they'll be destroyed. Some women in relationships choose to store eggs as well as embryos to keep options available for the future.

In some cases, eggs do not get fertilised because of unknown reasons, leading to no embryos. Intracytoplasmic sperm injections (ICSI), where sperm is injected directly into the egg, may sometimes be offered.

If you're single or in a same sex relationship, you may choose to use donor sperm. However, finding a suitable donor may not always be easy. The staff at the fertility clinic can discuss this with you further.

The organisations listed under 'Useful organisations' on page 39 can provide more information about sperm donors.

Success rates for IVF using frozen embryos have been increasing year on year and it remains the most effective way of preserving fertility. HFEA's website lists the current IVF success rates per age group.

Stages of egg or embryo freezing

These are the likely steps at the fertility clinic if you choose egg or embryo freezing. The techniques can vary according to your individual circumstances and the approach of your local clinic.

Step one: stopping the natural menstrual cycle

Many fertility clinics use a 'random start', which means that fertility treatment can begin at any point during the menstrual cycle. You may be given a short course of medication to temporarily stop your natural menstrual cycle, so that eggs can be collected in the timeframe required by the fertility specialists.

Step two: boosting the egg supply

Once your natural cycle is stopped, you'll be given a fertility hormone called follicle stimulating hormone (FSH). This is a daily injection you give yourself, usually for about 10–12 days. You'll be offered an appointment with a specialist nurse who will discuss how to give yourself the injections.

FSH increases the number of eggs your ovaries produce in a given month. This means more eggs can be collected and possibly fertilised. You're also likely to receive the breast cancer drugs letrozole or tamoxifen to reduce the levels of oestrogen in your body.

Step three: checking progress

You'll have transvaginal ultrasound scans to check your ovaries, and sometimes blood tests. About 34–38 hours before your eggs are due to be collected, you'll have a final hormone injection that helps your eggs to mature.

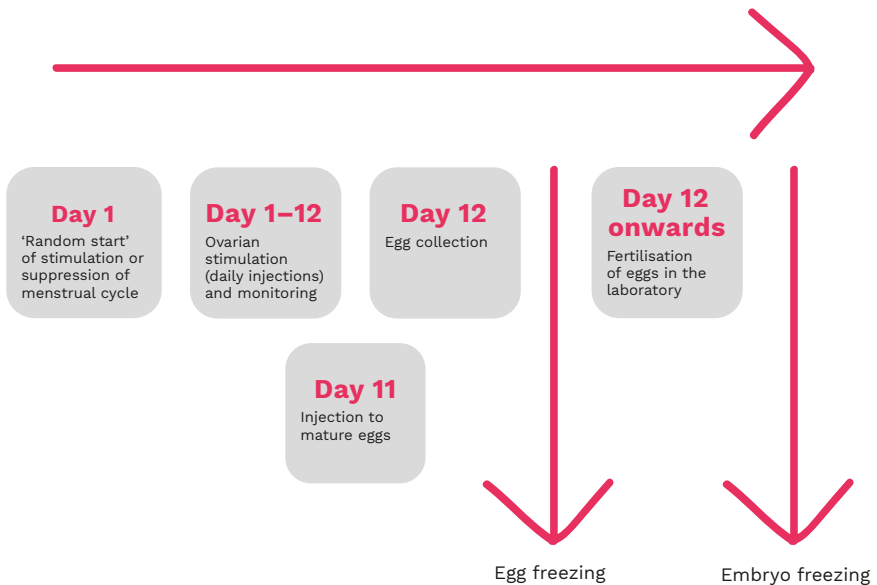
Step four: collecting the eggs

You'll be sedated or given a general anaesthetic and your eggs will be collected using a needle that's passed through the vagina and into each ovary under ultrasound guidance. This takes about 15–20 minutes and most women experience cramps after this procedure. If you're freezing your eggs, they're then frozen.

Step five: fertilising the eggs (if you're freezing embryos)

The collected eggs are mixed with your partner's or the donor's sperm in a laboratory. The fertilised eggs (embryos) continue to grow in the laboratory for one to six days before being frozen.

Timeline for freezing eggs and embryos



Estimated timeline for freezing eggs and embryos

Ovarian tissue freezing

This technique is still in the early stages of research and is not widely available. It can be suitable if you do not have time to freeze eggs or embryos.

Ovarian tissue, which contains a large number of immature eggs, is removed and frozen. After cancer treatment the tissue can be thawed and either re-implanted onto the ovary to start functioning and allow natural conception, or at a different site in the body so the process of IVF can take place.

Freezing ovarian tissue involves an operation. It can be carried out as a day case. The procedure must be done before chemotherapy begins. A further operation is required in the future to replace the tissue.

Ovarian tissue freezing is not an option for women at high risk of developing ovarian cancer; those who carry an altered BRCA1 or BRCA2 gene.

So far, relatively few babies in the world have been born using this method.

What happens at a fertility clinic?

It's natural to feel a bit anxious before attending your first clinic appointment. If you have a partner, it's recommended that they come with you. You'll have the opportunity to ask questions and will be offered specialist counselling. You can discuss the fertility preservation options, the likely success of any fertility treatments, what the procedure involves and the risks.

If you're currently taking the oral contraceptive pill, you'll be asked to stop this. However, it's still important to use contraception – see 'Contraception during and after treatment' on page 29.

If you decide to go ahead with fertility preservation, you'll need to have some tests. This will include blood tests for HIV and hepatitis.

Sometimes a blood test will be done to check the hormone level called AMH, you may also have a transvaginal ultrasound scan. These tests can check your current fertility.

The results of the tests will help the fertility team decide whether you'll be able to have the fertility treatment suggested.

If you're hoping to freeze embryos, your partner will also need to have blood tests and give a sperm sample.

Before any fertility treatment starts, you (and your partner) will need to complete a number of consent forms. You'll have to state what you'd like to happen to the eggs or embryos if you or your partner were to die or lose the ability to make your own decisions.

'Knowledge is power. If you are even considering starting or extending your family after treatment, then know your fertility options before treatment starts.'

Leila

Will I have to pay for fertility treatment?

NHS funding may be available, but the amount of funding and the criteria for treatment varies between Clinical Commissioning Groups and different regions. This can depend on:

- Where you live
- If either you or your partner already have children
- Your age

If you're not entitled to NHS-funded treatment, you may want to fund the treatment yourself. It may also be possible for you and your fertility specialist to apply for 'exceptional funding' if you do not meet the funding criteria.

Even if NHS funding is available for the initial fertility preservation, it does not guarantee that funding will be available to cover storage and using the frozen material in the future to try for a pregnancy.

If you have health insurance, check whether your cover includes such treatment. Paying for treatment privately may also be an option for you.

'The cost of the embryo freezing before chemotherapy was covered by the NHS but I'll have to pay for the future transfers.'

Marzena

THINGS TO CONSIDER AT DIAGNOSIS AND DURING BREAST CANCER TREATMENT

Ovarian suppression during chemotherapy

Some studies have shown that ovarian suppression may protect the ovaries during chemotherapy as it temporarily ‘shuts down’ the ovaries (which means your periods will stop). It involves monthly injections with a drug like goserelin (Zoladex), starting before chemotherapy and continuing throughout your chemotherapy treatment.

Your periods should usually start again within three to six months of stopping the hormone treatment, unless your natural menopause has occurred during your treatment. However, even if your periods do return this doesn’t necessarily mean you have preserved your fertility.

The effectiveness of ovarian suppression for preserving fertility is still debated and cannot replace other fertility preservation methods like egg and embryo freezing. More research is needed to establish the role of ovarian suppression during chemotherapy to preserve fertility.

For more information, see our **Ovarian suppression and breast cancer** and **Goserelin (Zoladex)** booklets.

Contraception during and after breast cancer treatment

Women are advised to avoid getting pregnant while having breast cancer treatment, as the treatment can damage an unborn baby at the early stages of development. This means if you’re sexually active with a man, your specialist is likely to advise using a non-hormonal contraception, such as condoms, female condoms (Femidoms) or a diaphragm.

It may also be possible to use a coil (IUD or intrauterine device). Speak to your treatment team as not all types are suitable for women with breast cancer. The contraceptive pill is not advised after a diagnosis of breast cancer as it contains hormones.

However, the morning-after pill can be used in an emergency as it's a single dose of hormones and unlikely to affect your breast cancer.

You should use reliable contraception during treatment. After treatment your decisions about contraception will depend on how you feel about getting pregnant.

See 'Pregnancy after breast cancer' on page 32 for more information.

AFTER BREAST CANCER TREATMENT

How will I know if my fertility has been affected by breast cancer treatment?

It's difficult to predict exactly how your fertility will be affected by breast cancer treatment. Generally, you should assume you could still get pregnant unless you haven't had a period for at least a year after completing your treatment if you're 40 or over, or two years if you're under 40. However, this is a general guide and varies for each person.

Even if your periods have not started again, you may still be producing eggs and could become pregnant. However, if your periods have returned this does not necessarily mean that your fertility has not been affected.

A number of women will conceive naturally after finishing their breast cancer treatment, but if you're concerned about your fertility ask to be referred to a fertility clinic.

Checking your fertility after treatment

After your treatment has finished, there's no totally reliable way of checking how treatment has affected your fertility.

You may not be able to find out straightaway after your treatment has finished if you're still fertile. Sometimes you may have to wait three to six months after your chemotherapy has finished before your hormone levels can be tested.

To check if your ovaries are working, a fertility specialist will ask about your periods, whether they have started again and whether you have any menopausal symptoms. A series of blood tests to check the levels of a hormone called FSH can be taken. The results of these can show whether you have gone through the menopause. Sometimes you'll be offered a blood test to check the level of a hormone called AMH as this may give more accurate information about how your ovaries are working. An ultrasound scan of the ovaries may be offered in some fertility clinics.

If you're taking tamoxifen, it may be possible to test your hormone levels. However, your fertility specialist may recommend you stop taking tamoxifen for a number of weeks before checking blood levels as there are concerns that the tamoxifen could make the test results less reliable.

Even if fertility returns after chemotherapy, the menopause is likely to occur earlier than would usually be expected. Women who have had chemotherapy are often referred to a fertility clinic after six months of trying to get pregnant naturally because of the possibility of early menopause. Some women trying to become pregnant use ovulation prediction kits sold in chemists to find out when they're ovulating. If you're having periods this can be a quick way to check if and when you're ovulating.

Pregnancy after breast cancer

For many women, deciding whether to try to get pregnant after a diagnosis of breast cancer is difficult.

If you're able to become pregnant and have a baby after your breast cancer treatment, there's no evidence that you're at increased risk of the cancer returning. There's also no evidence that there are any health risks for children born after breast cancer treatment.

Many specialists advise women to wait for at least two years before becoming pregnant. This is because the possibility of the cancer coming back can lessen over time, and you may be at greatest risk in the first two years after diagnosis.

Waiting for this long may not be appropriate for every woman. If you're thinking about getting pregnant, talk to your specialist. They can help you make an informed choice. You may want to discuss your own individual risk of the cancer coming back as well as other relevant factors, including your age, what treatment you have already received and any that's ongoing.

If you're offered hormone therapy, it's usually taken for five to ten years, by which time you may be facing a natural

menopause. Therefore, some women choose to take a break from hormone treatment if they want to try to get pregnant.

Some women start taking hormone treatment again after the birth of their baby if they're able to get pregnant. If the length of hormone treatment concerns you, talk to your specialist who will be able to advise you further. If you're planning to get pregnant after you've finished taking hormone treatment, it's best to wait at least two months to allow time for the drug to leave the body completely.

Women are not recommended to get pregnant during chemotherapy treatment.

The targeted therapy trastuzumab (Herceptin) is normally given for a year and is not thought to affect fertility. However, you should avoid becoming pregnant while taking trastuzumab and for at least seven months after treatment has finished. This is because of the possibility of harm to a developing baby.

Egg donation

If your ovaries have been damaged by treatment for breast cancer, it may be possible to become pregnant using donated eggs. They're fertilised with sperm from a partner or donor and the embryo transferred to the womb of the person hoping to become pregnant. There's currently a shortage of egg donors in the UK so there may be a wait for treatment.

The procedure involves taking some hormone drugs for around two weeks to prepare the womb to receive the embryo. The drugs are usually continued for up to 12 weeks if a pregnancy occurs. It's not known what effects taking these hormone drugs might have. There's a concern that they might stimulate the growth of breast cancer cells, although no research has proven an increased risk of breast cancer after this procedure.

If you have a child using donated eggs, sperm or embryos, any children will have the right to access identifying information about the donor when they turn 18.

For more information about egg donation, see HFEA's website.

Facing permanent loss of fertility

Some women who have had breast cancer treatment will face the possibility of permanent loss of fertility. This can be devastating and difficult to come to terms with, especially if it comes at a time when you were planning to start a family or before you have completed your family. It may change how you feel about yourself as a woman and you may feel intense grief at the loss your cancer has caused.

If this is the case for you, you may find it helpful to talk to a specialist counsellor. Your breast care nurse or oncologist may be able to arrange this for you.

You might also find it useful to talk to one of the specialist organisations listed at the end of this information. As well as offering emotional support they may be able to offer information on other options such as surrogacy, adoption or fostering.

Surrogacy

Surrogacy involves another woman carrying a baby for you. This can be an option for women who do not want to take a break from their hormone treatment to become pregnant because they have a higher risk of breast cancer recurrence. This can be done either using your own or donor eggs or embryos. For more information see 'Useful organisations' on page 39.

Adoption and fostering

Some women choose to adopt or foster a child. There are many children waiting to be adopted or fostered in the UK and from abroad. However, adoption and fostering can be a difficult and lengthy process. See 'Adoption, fostering and surrogacy' in the 'Useful organisations' section on page 39 for organisations that offer information and support for people interested in adoption and fostering.

Some women choose not to have fertility treatment, surrogacy or to adopt a child and enjoy life without being a parent.

FINDING SUPPORT

Whatever your feelings, you do not have to cope on your own. Involving your partner, family and friends can be helpful. Your treatment team and breast care nurse are there to provide information and support for you. Finding support can help you take control and help manage some of the emotional challenges.

You may find it helpful to share your feelings with another woman whose fertility has been affected by breast cancer treatment. Breast Cancer Now has a service called Someone Like Me which can put you in touch with someone who has had a similar experience. Call **0345 077 1893** or email **someonelikeme@breastcancernow.org**

At our Younger Women Together two-day residential event you can meet other women under 45 diagnosed with primary breast cancer. You'll hear from expert speakers on treatment, fertility, relationships, sex and intimacy. Events are held regularly across the UK, with food and accommodation provided free. To enquire about a place, call **0345 077 1893** or email **youngerwomen@breastcancernow.org**

There is a private Facebook group set up by younger women diagnosed with breast cancer called Younger Breast Cancer Network (YBCN) – facebook.com/YoungerBreastCancerNetwork – many of their members have had to make decisions about fertility preservation. To access the private group you'll need to have a Facebook account and send a private message to the group.

You can also seek professional support and counselling by speaking to a fertility counsellor, psychologist or your GP.

For more information about early menopause and the options available for younger women, see our **Younger women with breast cancer** and **Menopausal symptoms and breast cancer** booklets.

Summary of fertility preservation options

Fertility preservation treatment	Impact on treatment
No fertility preservation	Can start treatment straightaway and wait to see if fertility returns when treatment is over.
Egg freezing	May delay treatment for a short time in order to collect the eggs. However, new medical practices mean that preservation can start at any time during a woman's menstrual cycle ('random start').
Embryo freezing (IVF)	May delay treatment for a short time in order to collect and fertilise the eggs. However, new medical practices mean that preservation can start at any time during a woman's menstrual cycle ('random start').
Ovarian tissue freezing	May delay treatment for a short time as an operation is required to remove the ovarian tissue before chemotherapy begins.
Ovarian suppression	No delay to treatment as long as the injections have begun before chemotherapy starts.

Considerations

- Do not want children
 - Already completed family
 - More suited if cancer treatment needs to start straightaway
 - Willing to wait and see if fertility will return
 - Very young women – less likely to lose fertility
 - May consider using donor eggs in the future if required
 - Breast cancer treatment can trigger an early menopause
- May be suitable for women without a partner and those who do not want to use donor sperm
 - Very delicate procedure that has a lower success rate than embryo freezing
 - Availability of egg freezing varies across the UK
 - NHS funding may not be available including egg storage and usage in the future
 - Religious and moral beliefs
- May be suitable for women with a partner or those choosing to use donor sperm
 - Higher success rate than egg freezing
 - Embryos legally belong to the woman and their partner
 - Consent from both needed to use embryos in the future
 - NHS funding may not be available including embryo storage and usage in the future
 - Religious and moral beliefs
- Procedure in the early stages of research
 - Not widely available
 - May be an option if you do not want to freeze eggs or embryos
 - Not an option for women at a higher risk of developing ovarian cancer
 - Relatively few babies born using this method
- Monthly injections to be given throughout chemotherapy treatment
 - Can be used alongside other fertility preservation options
 - Research still ongoing into the effectiveness of this method for fertility preservation

'I turned to the Younger Breast Cancer Network on Facebook to speak to people who understood and could share my sense of isolation.'

Jackie

'There are so many...

...positive stories out there. Connect with the various groups, for me this is the Younger Breast Cancer Network (fertility hub) on Facebook, I wish I had joined it earlier. The support is amazing and you no longer feel lonely or isolated. Many others are going through the same thing and there are options.'

Charlotte-Eve

'I attended...

...one of the Breast Cancer Now's Younger Women Together events and thought it was just amazing! It was great to see, meet and cry with lots of women who were my age and also had breast cancer.'

Meagan

USEFUL ORGANISATIONS

Fertility organisations

British Infertility Counselling Association

bica.net

A charity providing counselling and support to people affected by infertility. You can also find a counsellor in your area.

The Daisy Network

daisynetwork.org.uk

Voluntary nationwide support group for women who experience a premature menopause. Allows members to share information about their personal experience of premature menopause.

Fertility Network UK

fertilitynetworkuk.org

Provides support and information, and promotes awareness of fertility issues. Also incorporates More to Life, a national charity providing support to people who are involuntarily childless.

Human Fertilisation and Embryology Authority (HFEA)

hfea.gov.uk

This organisation monitors and licenses all IVF clinics in the UK. It produces a list of centres providing IVF and leaflets on IVF, egg donation and egg freezing.

Savemyfertility.org

savemyfertility.org

An American patient information resource provided by the Oncofertility Consortium.

Adoption, fostering and surrogacy

Adoption UK

adoptionuk.org

Provides information about adoption and support for adoptive families.

Brilliant Beginnings

brilliantbeginnings.co.uk

A UK agency helping surrogates and intended parents to come together to pursue surrogacy.

British Association of Adoption & Fostering

baaf.org.uk

Provides information on adoption and fostering, and works with everyone involved with adoption and fostering across the UK.

COTS: Childlessness Overcome Through Surrogacy

surrogacy.org.uk

A UK-based charity to help people get in touch with potential surrogates.

Donor Conception Network

dcnetwork.org

A supportive network for people through donor conception.

Fertility Friends

fertilityfriends.co.uk

An online community discussing infertility, adoption, parenting after infertility and moving on.

National Gamete Donation Trust

ngdt.co.uk

Information mainly for those considering becoming an egg or sperm donor but also for healthcare professionals and those looking for donors.

Surrogacy UK

surrogacyuk.org

Surrogacy UK was created by experienced surrogate mothers. They wanted to form an organisation that reflected their experience of what makes surrogacy work.

FURTHER INFORMATION

Fertility toolkit

Breast Cancer Now has developed a Fertility toolkit for healthcare professionals, to help ensure younger women are offered the chance to discuss fertility preservation with a specialist. Find out more at **[breastcancernow.org/information-support/healthcare-professionals](https://www.breastcancernow.org/information-support/healthcare-professionals)**

Green-top Guideline No.12 Pregnancy and Breast Cancer

Royal College of Obstetricians and Gynaecologists
[rcog.org.uk/guidelines-research-services/guidelines/gtg12](https://www.rcog.org.uk/guidelines-research-services/guidelines/gtg12)

This document aims to provide clinical guidance to healthcare professionals caring for young women with a diagnosis or history of breast cancer. There is also a patient version.

FOUR WAYS TO GET SUPPORT

We hope this information was helpful, but if you have questions, want to talk to someone or read more about breast cancer, here's how you can.



Speak to our nurses or trained experts. Call our free Helpline on **0808 800 6000** (Monday to Friday 9am–4pm and Saturday 9am–1pm). The Helpline can also put you in touch with someone who knows what it's like to have breast cancer.



Chat to other women who understand what you're going through in our friendly community, for support day and night. Look around, share, ask a question or support others at **forum.breastcancer.org**



Find trusted information you might need to understand your situation and take control of your diagnosis or order information booklets at **breastcancer.org/publications**



See what support we have in your local area. We'll give you the chance to find out more about treatments and side effects as well as meet other people like you. Visit **breastcancer.org/in-your-area**

SUPPORT FOR TODAY HOPE FOR THE FUTURE

If you found this booklet helpful, use this form to send us a donation.

Donate online

Donate using your debit or credit card breastcancernow.org/donate

Donate by phone

Call **0333 20 70 300**

Donate by post

Please accept my donation of £10/£20/my own choice of £

I enclose a cheque/PO/CAF voucher made payable to Breast Cancer Now

Name _____

Address _____

_____ Postcode _____

Email address _____

Telephone _____

Keeping in touch with Breast Cancer Now

We'd like to tell you ways you can help further, including through donating, fundraising, campaigning and volunteering, and send you updates on our research, the support we provide, breast health information and our wider work to achieve our aims.

If you already hear from us, we will continue to contact you in the same way. If you don't already hear from us, please tick the box if you are happy to be contacted by:

- Email
 Mobile messaging

Please return this form to Breast Cancer Now, Freepost RTSC-SJTC-RAKY, Fifth Floor, Ibex House, 42–47 Minories, London EC3N 1DY

How we use your information

From time to time, we may contact you by telephone and post to keep you updated on our work and ways you can help. You can change the way you hear from us at any time by emailing us at supporterengagement@breastcancernow.org or calling us on 0333 20 70 300.

To help us to work more efficiently, we may analyse your information to make sure you receive the most relevant communications, and to target our digital advertising. This may include using publicly available information. You can ask us to stop this at any time, by contacting us using the above contact details. You can read more about how we will use your information on our website at breastcancernow.org/privacy, or contact us if you'd like a paper copy.



ABOUT THIS BOOKLET

Fertility and breast cancer treatment was written by Breast Cancer Now's clinical specialists, and reviewed by healthcare professionals and people affected by breast cancer.

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For a full list of the sources we used to research it:
Phone **0345 092 0808**
Email **health-info@breastcancer.org**



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BREAST CANCER NOW

The research
& care charity

At Breast Cancer Now we're powered by our life-changing care. Our breast care nurses, expertly trained staff and volunteers, and award-winning information make sure anyone diagnosed with breast cancer can get the support they need to help them to live well with the physical and emotional impact of the disease.

We're here for anyone affected by breast cancer. And we always will be.

For breast cancer care, support and information, call us free on **0808 800 6000** or visit **breastcancernow.org**

Breast Cancer Now

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breastcancernow.org



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