

MACMILLAN
CANCER SUPPORT

CANCER TREATMENT AND FERTILITY

INFORMATION FOR WOMEN



About this booklet

This booklet is about how cancer and its treatments can affect your fertility.

The booklet explains:

- how cancer treatments can affect fertility
- how fertility can be preserved before cancer treatment
- how fertility can be tested after cancer treatment
- options for fertility treatment to start a pregnancy
- other options for having a child.

This booklet is for anyone who needs information on this before, during or after cancer treatment. This information is for you whether you are in a relationship or not and whatever your sexual orientation.

If you have other fertility issues, or are taking hormone treatment for gender reassignment, you may have extra questions. Your doctor or fertility clinic can help with this.

We hope this booklet helps you deal with some of the questions or feelings you may have. We cannot give advice about the best options for you. You should talk to your doctor, who knows your medical history.

We also have a booklet called **Cancer and fertility – information for men** (see page 52).

How to use this booklet

This booklet is split into sections to help you find what you need. You do not have to read it from start to finish. You can use the contents list on page 5 to help you. It is fine to skip parts of the booklet. You can always come back to them when you feel ready.

On pages 56 to 60, there are details of other organisations that can help.

There is also space to write down questions and notes on page 61.

Quotes

In this booklet, we have included quotes from people whose fertility has been affected by cancer. These are from our Online Community (macmillan.org.uk/community). To share your experience, visit macmillan.org.uk/shareyourstory

For more information

If you have more questions or would like to talk to someone, call the Macmillan Support Line free on **0808 808 00 00**, 7 days a week, 8am to 8pm, or visit **macmillan.org.uk**

If you would prefer to speak to us in another language, interpreters are available. Please tell us, in English, the language you want to use.

If you are deaf or hard of hearing, call us using NGT (Text Relay) on **18001 0808 808 00 00**, or use the NGT Lite app.

We have some information in different languages and formats, including audio, eBooks, easy read, Braille, large print and translations. To order these, visit **macmillan.org.uk/otherformats** or call **0808 808 00 00**.

Your data and the cancer registry

When you are diagnosed with cancer in the UK, some information about you, your cancer diagnosis and your treatment is collected in a cancer registry. This is used to plan and improve health and care services. Your hospital will usually give this information to the registry automatically. There are strict rules to make sure the information is kept safely and securely. It will only be used for your direct care or for health and social care planning and research.

Talk to your doctor or nurse if you have any questions. If you do not want your information included in the registry, you can contact the cancer registry in your country to opt out. You can find more information at **macmillan.org.uk/cancerregistry**

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What is fertility?

Your fertility means being able to get pregnant and give birth to a baby.

The parts of your body that help you do this are called your reproductive system. This includes the:

- ovaries
- fallopian tubes
- womb (uterus)
- cervix
- vagina.

The pituitary gland is a small gland at the base of the brain. It releases hormones (chemical messengers in the body) that control how your reproductive system works.

Your fertility depends on having:

- a supply of eggs from the ovaries
- a healthy womb
- the right hormone levels.

Usually, once a month, one of the ovaries releases an egg. The hormones from the pituitary gland help control this process. This starts at puberty and happens until the menopause.

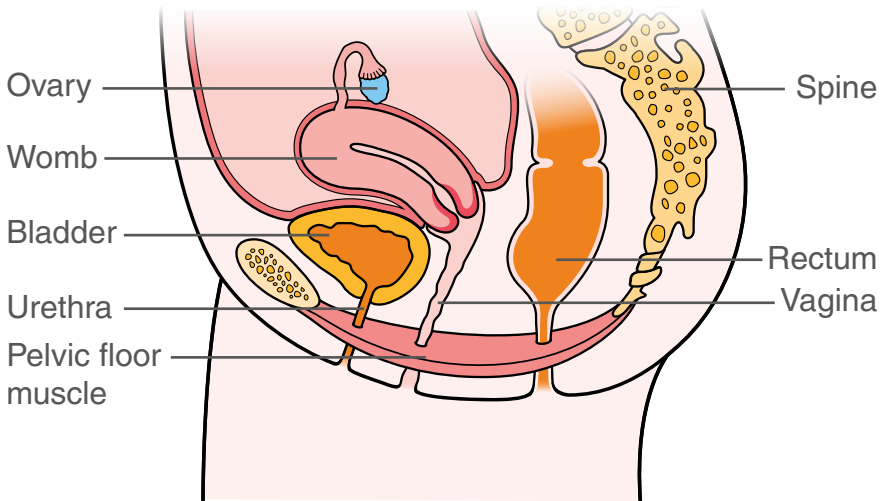
To get pregnant, one of your eggs needs to be fertilised by a sperm. This may happen if you have vaginal sex.

The egg leaves the ovary and moves along the fallopian tube. This is where it can be fertilised by a sperm. The fertilised egg develops into an embryo. The embryo continues to your womb, where it can settle itself into the womb lining. The embryo stays in the womb and grows into a baby.

Every month, hormones help make the lining of the womb ready for an embryo. If the egg is not fertilised, the womb lining comes out through the vagina as your monthly period.

Some people have difficulty getting pregnant and may need treatment to help them (see pages 39 to 46).

The female reproductive system



Menopause

You are born with lots of eggs stored in your ovaries. As you get older, the number of eggs decreases. When you have very few eggs left, the ovaries cannot release an egg every month and your periods stop. This is called the menopause. Usually, this happens between the ages of 45 and 55.

Having fewer eggs also changes your hormone levels. This can cause symptoms such as:

- hot flushes and sweats
- vaginal dryness
- mood changes
- difficulty sleeping
- a low sex drive.

Some cancer treatments can affect the ovaries and cause an early menopause. Other treatments can cause temporary menopausal symptoms.

Talking to your medical team

Having children is an important part of many people's lives or their future plans. It may be hard to think about this when you are already coping with cancer. But it is important to talk to your cancer doctor or specialist nurse about fertility before you start cancer treatment.

Some cancer treatments are unlikely to affect your fertility. Others may cause fertility problems during treatment or for a short time afterwards. Some treatments cause long-term or permanent damage to fertility.

Your cancer doctor will explain the possible risks to your fertility. If having children is important to you, they may refer you to a fertility clinic before you start cancer treatment. But this is not always possible. Fertility preservation takes a few weeks and your cancer treatment may need to start sooner.

Staff at the clinic can talk to you about ways of increasing your chances of getting pregnant in the future (fertility preservation). A specialist fertility counsellor will be available to support you and your partner if you have one. Try to think about the questions you want to ask, so you can get all the information you need.

Questions for your medical team

Below are some questions you might want to ask your medical team before and after cancer treatment.

Before cancer treatment

- How will my fertility be affected?
- Are there ways to protect my fertility during cancer treatment?
- Can I store embryos, eggs or ovarian tissue?
- What type of contraception should I use during cancer treatment?

After cancer treatment

- What type of contraception should I use, and for how long after cancer treatment?
- When should I have tests to check my fertility?
- I want to try to get pregnant naturally. When can I start trying?
- What are my options for having children?
- What fertility treatments will help me?

Cancer treatments and fertility

The main treatments for cancer are:

- chemotherapy
- radiotherapy
- surgery
- hormonal therapy
- targeted therapy
- immunotherapy.

These treatments can affect your fertility in different ways. They can damage or affect:

- the eggs in the ovaries
- the pituitary gland and hormone levels
- the womb, cervix or ovaries.

Doctors may not be able to predict how your fertility will be affected. But your age and the planned treatment can help give an idea of your individual risk. Sometimes, it may be possible to reduce the effects of treatment on your fertility.

Menopausal symptoms

Depending on your cancer treatment, your periods may stop during treatment and start again afterwards. You might have some menopausal symptoms. These may get better after treatment ends.

Sometimes cancer treatment causes permanent damage to the ovaries. You may have no more periods and continue to have menopausal symptoms after treatment ends. This is called early menopause or premature ovarian insufficiency (POI).

Coping with menopausal symptoms can be hard. Ask your cancer doctor or specialist nurse for advice about treatments that can help. There are also organisations that can give you support if you have had an early menopause (see page 56).

Contraception during cancer treatment

Cancer treatments may harm an unborn baby. You might still be able to get pregnant even if your periods stop during treatment. So, it is important to use contraception to prevent a pregnancy during cancer treatment and for a time after it. Your cancer doctor will tell you how long you need to use contraception for. If you have questions about contraception, talk to your doctor or nurse.

If your fertility does recover, it is hard to predict when this will be. This could happen without you being aware of it. If you do not want to start a pregnancy, you should keep using contraception unless doctors tell you the infertility is permanent.

If you have had breast cancer, your cancer doctor may advise you not to use contraception that contains hormones, such as the contraceptive pill. This is because the hormones could encourage breast cancer cells to grow. Your cancer doctor or specialist nurse will give you more advice about this.

We have more information about breast cancer in our booklet **Understanding breast cancer in women** (see page 52).

Chemotherapy

Chemotherapy uses anti-cancer (cytotoxic) drugs to destroy cancer cells. It can reduce the number of eggs stored in the ovaries. It can also make you release fewer or no eggs. This means you may be infertile for a while (temporary infertility). Chemotherapy sometimes causes permanent infertility and an early menopause.

The effects of chemotherapy on your fertility depend on the following:

- Your age. The closer you are to your natural menopause, the higher the risk of infertility.
- The drugs you have. Some chemotherapy drugs affect fertility more than others.
- The combination of drugs. Having different drugs together may be more likely to affect fertility than having a single drug.
- The dose of the drug. Higher doses of chemotherapy are more likely to affect fertility, especially if you have them before a stem cell transplant.

Chemotherapy can reduce the number of eggs you have. So your menopause may start 5 to 10 years earlier than it would have done naturally. This means you have a shorter time to try to get pregnant. Sometimes it is possible to choose a chemotherapy treatment that is less likely to affect your fertility. Or your cancer doctor may give you a type of hormonal therapy during chemotherapy to try to protect the ovaries. They will tell you if these are options for you.



Having radiotherapy

Radiotherapy

Radiotherapy uses high-energy rays to destroy cancer cells. It can cause fertility problems by damaging:

- the ovaries or eggs
- the womb
- the pituitary gland.

If you have radiotherapy to an area of the body we do not mention over the next few pages, this will not cause infertility.

Radiotherapy to the pelvis

Radiotherapy given directly to the ovaries and womb will cause permanent infertility. This treatment will cause an early menopause and you will not be able to get pregnant.

Radiotherapy to other areas of the pelvis may indirectly damage the ovaries or womb. This may stop the ovaries working for a short time or permanently. If the ovaries recover after treatment, you may be able to get pregnant.

If the womb is damaged, you may be able to get pregnant. But there will be a higher risk of miscarriage or premature birth.

Your risk of infertility depends on:

- the dose of radiotherapy you have
- your age.

The risk increases as you get older. There is also a higher risk of infertility when you have chemotherapy with radiotherapy (chemoradiation).

The radiographer may be able to protect the ovaries with a lead shield during radiotherapy. Or in some cases, surgeons can move the ovaries out of the way of the area being treated before radiotherapy starts. This is called ovarian transposition. They usually do it using keyhole surgery. If this is successful, but there has been damage to the womb, you could choose to use your eggs with a surrogate in the future.

Total body irradiation (TBI)

Total body irradiation (TBI) is radiotherapy given to the whole body before a donor stem cell or bone marrow transplant. This usually causes permanent infertility. Your cancer doctor will talk to you about this before you agree to treatment.

We have more information about this on our booklet

Understanding donor stem cell transplants (see page 52).

Radiotherapy to the brain

Radiotherapy to the pituitary gland at the base of the brain can sometimes affect fertility. The pituitary gland releases hormones called gonadotrophins. These stimulate the ovaries.

After radiotherapy, the pituitary gland may stop making gonadotrophins. This can happen some months or years after radiotherapy. If this happens, the ovaries may stop making hormones and releasing eggs. Your periods may stop and you may not be able to get pregnant. This is not because you have run out of eggs, but because your ovaries are not releasing them.

If you want to get pregnant, your doctor may be able to give you gonadotrophin-replacement injections. These can stimulate the ovaries to release an egg (see page 45).

Radioactive iodine

Radioactive iodine is a type of radiotherapy used to treat thyroid cancer. It does not usually affect fertility. But your periods may stop for a while after treatment.

We have more information about thyroid cancer in our booklet **Understanding thyroid cancer** (see page 52).

Surgery

Types of surgery that can affect your fertility are:

- having the womb removed
- having the ovaries removed
- surgery to the cervix
- surgery to the pituitary gland.

Surgery to the womb or ovaries

For some cancers, surgery involves removing the womb (hysterectomy), the ovaries, or both. The surgery you have will depend on the type of cancer you have.

If the womb is removed but not the ovaries, you will still release eggs. You may be able to use these eggs with a surrogate in the future (see page 48).

If both the ovaries are removed, you will have an early menopause and will not release eggs. You may be able to have your eggs frozen before surgery.

If one ovary is removed, the remaining ovary will continue to release eggs and hormones. Having one ovary removed is sometimes called fertility-sparing surgery. If you still have a womb, you may still be able to get pregnant naturally.

Surgery to the cervix

An operation called a trachelectomy can occasionally be used for very small, early-stage cancers of the cervix. This operation removes most of the cervix. The womb and ovaries are not removed. It may be possible to get pregnant and have a baby afterwards. But there is a higher risk of miscarriage or premature birth.

Trachelectomy is a specialised operation. It is only done in a few hospitals in the UK.

Surgery to the pituitary gland

Surgery may be used to remove a tumour in the pituitary gland. The pituitary gland is at the base of the brain. It releases hormones called gonadotrophins that stimulate the ovaries.

When surgeons remove the tumour, they try to leave some of the gland. But this is not always possible. Removing the whole pituitary gland affects hormone levels, and the ovaries stop releasing eggs. Your periods may stop and you will not be able to get pregnant. This is not because you have run out of eggs, but because your ovaries are not releasing them. If you want to get pregnant, your doctor may be able to give you gonadotrophin-replacement injections. These can stimulate the ovaries to release an egg.

Hormonal therapy

For some types of cancer, hormones encourage the cancer cells to grow. Your cancer doctor may treat you with a hormonal therapy drug. This reduces the levels of hormones in the body or blocks their effect on cancer cells. Doctors often use hormonal therapy drugs to treat breast cancer. These drugs can affect your fertility. But this is usually temporary.

Your periods may change or stop while you are taking a hormonal therapy drug. But it is still important to use contraception to prevent a pregnancy. This is because these drugs may harm an unborn baby.

Menopausal symptoms such as hot flushes are common while taking a hormonal therapy drug. These stop after you finish taking the drug. Periods usually start again after you have finished taking the drug, but this can take a few months. If you go through your natural menopause during treatment, you may not be aware of it. This is because the side effects of hormonal therapy drugs are similar to the symptoms of the menopause.

Targeted therapy and immunotherapy

Targeted therapy drugs find and attack cancer cells. Immunotherapy drugs are treatments that use the immune system to recognise and kill cancer cells. These treatments are used to treat many different cancers.

It is not yet known exactly what effect these treatments may have on fertility. If you are treated with a targeted therapy or immunotherapy drug, your cancer doctor can talk to you about possible risks to your fertility.



PRESERVING YOUR FERTILITY

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Ways of preserving fertility

It can be hard to know if cancer treatment will affect your fertility or if it will return after treatment. Your doctor may refer you to a fertility clinic for advice before you start cancer treatment. This depends on your age and the type of cancer you have. The Human Fertilisation and Embryology Authority (HFEA) has information about NHS and private fertility clinics (see page 57).

The doctors at the fertility clinic will explain ways to save (preserve) your fertility and help you get pregnant in the future. This is called fertility preservation.

Fertility preservation means storing one of the following before treatment:

- eggs
- embryos (eggs fertilised with sperm)
- ovarian tissue.

They will give you information about any risks of fertility preservation. They will also tell you how likely it is that each method will help you get pregnant. This can be a lot of information to understand. You may want to take notes or have some questions ready to ask the doctor. They will offer you counselling or further support.

Before the eggs, embryos or ovarian tissue are stored, you will be asked to sign a consent form that explains how they will be used. The staff at the fertility clinic will talk to you about this and explain your options.

You will have a blood test, to check for infectious diseases such as hepatitis and HIV. This is standard procedure for anyone storing eggs, embryos or ovarian tissue.

You may find the table on pages 30 to 31 helpful for making a decision about the right fertility method for you.

Freezing eggs

This is a common and effective way of preserving fertility. You can have hormone injections to help you release more eggs. These can then be collected and frozen. The frozen eggs can be fertilised in the future using a partner's sperm or donor sperm.

Ovarian stimulation

To collect the eggs, you usually have daily injections under the skin of a type of hormone called gonadotrophin. The hormone makes the ovaries release more mature eggs than usual (ovarian stimulation). Collecting as many eggs as possible increases your chance of getting pregnant in the future. Ovarian stimulation takes at least 2 weeks.

Ovarian stimulation is not suitable for everyone. There may not be time for this if you need to start cancer treatment straight away.

The gonadotrophin used to stimulate the ovaries increases your level of the hormone oestrogen. Oestrogen may encourage some cancers to grow, including some types of breast cancer, ovarian cancer and womb (endometrial) cancer. If you have one of these cancers, your eggs can be collected in one of the following ways:

- Without using hormone drugs to stimulate the ovaries.
Your doctor can collect 1 or 2 eggs in this way. But having fewer eggs collected reduces your chance of getting pregnant in the future.
- With just 1 injection of ovarian stimulation in the usual way.
- Using a second hormone drug called letrozole during ovarian stimulation. Letrozole helps protect you from the effects of oestrogen on cancer cells.

Your doctor will explain any risks of ovarian stimulation and give you information about your options.

Monitoring ovarian stimulation

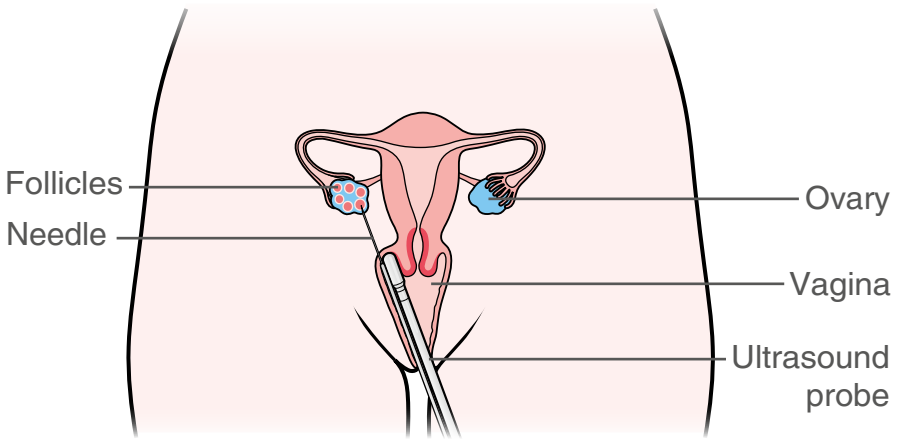
During ovarian stimulation, you will be monitored at the fertility clinic with blood tests and ultrasound scans. An ultrasound uses sound-waves to make a picture of the ovaries. This is to check how the follicles containing the eggs are developing in the ovaries. The hormones make the ovaries more swollen, so they are easier to see on the ultrasound.

The ultrasound probe is put inside the vagina. This is not usually painful. The probe is about the same width as a tampon. If you cannot or do not want to have the scan through the vagina, the probe can be put over the tummy (abdomen).

Collecting the eggs

A doctor collects the eggs when they are mature. This is about 14 days after the start of ovarian stimulation. The doctor uses a vaginal ultrasound to guide a needle into the ovaries. They collect the eggs through the needle. The collection takes about 15 to 20 minutes. This can be uncomfortable, so you will be sedated while it is done. You can usually go home after a few hours.

Egg collection



Freezing the eggs

After the eggs have been collected, they can be frozen and stored. There are different ways to do this. The most successful way to freeze eggs is a technique called vitrification. This involves freezing the eggs very quickly. This is not available at every fertility clinic. Talk to your fertility doctor about your options.

Freezing embryos

This is another common and effective way of preserving fertility. You go through the same procedure for collecting eggs (see page 27). After the eggs have been collected, they are put in a sterile dish with sperm to encourage fertilisation. This is called in vitro fertilisation (IVF). The eggs that are fertilised grow into embryos. These are then frozen and stored.

Embryos can be slowly frozen or quickly frozen by vitrification. Both are safe procedures and many babies have been born using these techniques.

If you have a partner who has provided sperm for this, they have equal rights in deciding what happens to the embryos. If they withdraw the right for you to use the embryos, you will not be able to use them.

Even if you have a partner who can provide sperm, you can still choose to have unfertilised eggs frozen (see above). Your partner has no say in how those eggs are used in the future.

Storing embryos and eggs

The NHS often provides embryo or egg storage if you are affected by cancer. But in some areas of the UK, you may have to pay for it yourself. The staff at the fertility clinic will tell you what is available in your area. Even if the storage is funded, using the embryos or eggs for fertility treatment in the future may not be. This means you may have to pay for this treatment. Your doctor or nurse will give you information about costs in your area.

Embryos and eggs can be stored for at least 10 years, and for longer in some situations. They will be frozen and stored in a tank of liquid nitrogen. This is called cryopreservation.

Freezing tissue from an ovary

Before cancer treatment starts, doctors remove an ovary or small pieces of an ovary. They do this using keyhole surgery. These pieces of ovary are frozen and stored. They contain thousands of immature eggs. After cancer treatment, if you decide to try to get pregnant, the doctors can put the pieces of ovary back into your body. This can make it possible to get pregnant naturally or with IVF treatment.

This technique is suitable for most women, including if you:

- have to start cancer treatment quickly
- cannot have fertility drugs
- have not reached puberty (started having periods).

It may not be suitable if there might be cancer cells in the ovary.

This is a newer technique and it is not widely available in the UK. Only a few babies in the world have been born using this method.

Fertility preservation methods

	Freezing eggs	Freezing embryos	Freezing tissue from an ovary
Age	Not an option before puberty.	Not an option before puberty.	Can be done before puberty.
Time	Takes at least 2 weeks.	Takes at least 2 weeks.	Takes a few days.
Success rate	Good success rate.	Good success rate.	This method is too new to know.
How you can get pregnant	ICSI.	IVF.	Natural conception or IVF.
Risks	For hormone-sensitive cancers, the hormones used for ovarian stimulation could cause the cancer to grow.	For hormone-sensitive cancers, the hormones used for ovarian stimulation could cause the cancer to grow.	If there are cancer cells in the ovarian tissue, the cancer may come back when the tissue is used.

	Freezing eggs	Freezing embryos	Freezing tissue from and ovary
Other things to consider	The sperm is not needed until the eggs are used.	You will need consent from the other biological parent to use the embryos.	<ul style="list-style-type: none">• Can be used if ovarian stimulation is not possible.• The sperm is not needed until the eggs are used.• Only available in a small number of clinics.



AFTER CANCER TREATMENT

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Making plans

It can take time to move forward with life after cancer treatment. The decision to try to have a baby is a big one for anyone to make. You may have worries and questions about fertility that did not seem important before cancer treatment. When you are ready, you can talk to your cancer doctor again for more advice.

You may have been told there is a chance your fertility will recover after cancer treatment. This may mean you decide to wait and try to get pregnant naturally. Your cancer doctor can give you more information about when your fertility might come back and what to expect. Depending on the type of cancer and your cancer treatment, they may advise you to wait for some time before trying to get pregnant.

It is hard to know exactly how or when your fertility will recover. Fertility testing can check how close you are to the menopause.

You may be able to store your eggs, embryos or ovarian tissue before cancer treatment (see pages 24 to 31). If your fertility does not return after cancer treatment, you may be able to use them to help you get pregnant. If you did not store them before cancer treatment, you may decide to use donor eggs.

For some people, deciding to have fertility treatment can be hard. This may be because of moral, cultural or religious views. You may want to talk to a partner, family member or religious adviser about any concerns you have. You can also talk to the staff at the fertility clinic.

Talking to other people can be helpful while you are thinking about your options. Whatever you decide, there are organisations that can support you, such as the British Infertility Counselling Association (BICA) – see page 57.

When can I try to get pregnant?

There is no evidence that cancer treatments harm children conceived after treatment. But doctors usually advise you to use contraception for a while after treatment to let your body recover.

If you are thinking about getting pregnant, it is helpful to talk to your cancer doctor first. Depending on your age and the type of cancer and treatment you had, they may suggest trying sooner or waiting longer. They will also give you advice about any health checks you need before you try to get pregnant.

If you are taking hormonal therapy for breast cancer, it may be possible to stop treatment for a short time so you can have a baby. Research is happening to help doctors find out more about the effects of doing this. Your cancer doctor can give you information about the risks and benefits of doing this.

Worrying about cancer coming back

It is natural to worry about cancer coming back. No one can tell you exactly what will happen in the future. But your cancer doctor may be able to give you information about what is likely to happen. For some people, the risk of cancer coming back gets less as time goes on. They may decide to wait a few years before trying to have a baby.

Can being pregnant make cancer come back?

Research suggests that for almost all types of cancer, pregnancy does not make cancer more likely to come back. If you have one of a rare group of tumours called gestational trophoblastic disease, your doctor will talk to you more about this.

Can cancer be passed on to children?

Some people worry about passing on cancer or cancer genes to their children. Cancer cannot be passed from a parent to child. A small number of people have an inherited cancer gene that increases their risk of getting cancer. But this is rare, and most cancers are not caused by inherited cancer genes. Talk to your doctor if you are worried about the risk of cancer in your family.

We have more information that might be helpful in our booklet **Cancer and genetics: How cancer sometimes runs in families** (see page 52).

If you are single or in a same-sex relationship

If you are single or in a same-sex relationship and you want to have children, you can become a parent through:

- fertility treatment
- adoption or fostering
- co-parenting – an agreement to conceive and raise a child with someone who is not your partner
- surrogacy.

You may be able to have fertility treatment on the NHS using donor sperm. NHS funding rules still apply and may be different in different areas (see page 40). You can ask your GP for more information.

There are laws about becoming a legal parent in all these situations. The Human Fertilisation and Embryology Authority (HFEA) has more information (see page 57). If you are in a same-sex relationship, organisations such as Stonewall and Pink Parents also provide information and support (see page 58).

Not having children

Some people decide not to have children. This may be a clear choice they are happy with. Sometimes it is more complicated. You may feel the choice has been taken away from you because of cancer. You may find this very upsetting. It may help to talk to someone about this. There is no right or wrong way to feel. Everyone is different.

Your GP can give you support and may suggest a counsellor for you to talk to. Or you can call us on **0808 808 00 00**. Other organisations can also provide emotional support, such as the British Infertility Counselling Association and Fertility Network UK (see page 57).

Fertility testing

The number of eggs in your ovaries is called your ovarian reserve. Cancer treatment can reduce your ovarian reserve, so you have an early menopause.

Usually women are referred to a fertility clinic after 1 to 2 years of trying to get pregnant. But after cancer treatment, you can be referred for fertility testing sooner. This is because of the increased risk of early menopause after cancer treatment.

Fertility tests can help measure your ovarian reserve or how close you are to the menopause. They do not always clearly show if you can have children. The tests may help you decide what to do next. You can decide if you want to have fertility treatment (see page 39).

Your doctor will ask you about your periods and take blood tests. There is a blood test you can have even if you are not having periods.

You may also have a scan called an antral follicle count. This is an ultrasound scan of the ovaries. It looks at the follicles that contain the eggs. For this scan, an ultrasound probe is put inside the vagina.

Taking the contraceptive pill or hormone replacement therapy (HRT) can affect the results of some of these tests. Let your doctor know if you are taking either of these.

If cancer treatment has caused your periods to stop, they may come back months or years after treatment ends. This is more likely if you are younger, but it also depends on the treatment you have had. If your periods change, you can have these tests done again. Your doctor will talk to you about the options available to you.

Fertility treatment

If cancer treatment has damaged your fertility or made it difficult to have sex, you may decide to have fertility treatment. If you have a partner, you can talk with them about this. Your doctor can talk to you about your options.

At the fertility clinic, the doctor will talk to you about your fertility and treatments that may help. They will answer your questions and arrange any tests you need. Your fertility doctor will also ask you questions about your lifestyle. This can help them see if there are changes you can make that might help improve your fertility.

If you are not using a sperm donor, the person you have fertility treatment with will need to have some tests too. They will also need to answer questions about their lifestyle.

Fertility treatment does not always result in a pregnancy. Your fertility specialist will talk to you about this.

Many children have been born using fertility treatments. There do not seem to be any long-term health risks to the child. Your fertility doctor can give you more information about any possible risks of these treatments.

Where to get fertility treatment

This depends on whether you have NHS treatment or private treatment.

Your GP can tell you which clinics offer NHS treatment in your area. If you have already had fertility preservation or fertility tests, you may be able to go back to the same clinic.

For private treatment, you can choose a clinic. You can arrange this yourself, but it can be useful to have a referral letter from your GP.

You can get details of all the fertility clinics in the UK from the Human Fertilisation and Embryology Authority (HFEA) (see page 57). The HFEA also provides advice about choosing a clinic.

How much fertility treatment costs

The NHS may pay for a certain number of fertility treatments. There are rules about funding fertility treatment on the NHS. The rules and funding are different across the UK. If you decide to have fertility treatment with a partner, it is important to remember these rules apply to them too. Your GP, cancer doctor or fertility doctor can give you information about this.

Private fertility treatment

Some people choose to pay for some, or all, of their fertility treatment privately. You may be thinking about this if:

- you are not eligible for NHS treatment
- you are worried about NHS waiting times
- the NHS does not provide the treatment you want or need.

There are no standard charges for private treatment. You can contact clinics directly to find out which treatments they offer, how much they charge and their success rates.



Types of fertility treatment

Types of fertility treatment include the following:

- Intra-uterine insemination (IUI). The specialist puts sperm directly into the womb. They use a fine tube, which they put through the cervix and into the womb. They do this when an ovary is most likely to release an egg. If an egg is fertilised, a pregnancy may develop. This procedure only takes a few minutes. It feels like having a cervical screening test.
- In vitro fertilisation (IVF). This happens in a laboratory. The specialist mixes collected eggs and sperm together in a dish. They see if any eggs fertilise and become embryos. If suitable embryos develop, they put one or sometimes more into the womb to see if a pregnancy develops. They use a fine tube, which they put through the cervix and into the womb. Any other embryos can be stored for future use.
- Intra-cytoplasmic sperm injection (ICSI). This happens in a laboratory. Under a microscope, the specialist uses a fine needle to inject a single sperm directly into each egg. They see if any eggs fertilise and become embryos. If suitable embryos develop, they put one or occasionally more in the womb to see if a pregnancy develops. They use a fine tube, which they put through the cervix and into the womb. Any other embryos can be stored for future use.

After cancer treatment, you may decide to use your frozen eggs, embryos or ovarian tissue to try to get pregnant. When they are needed, they will be carefully thawed in a laboratory.

If it is difficult to have sex

You may find having sex difficult after cancer treatment. If your fertility has come back, you may choose to have IUI.

Using your frozen eggs

When you are ready to try to get pregnant, the eggs are thawed and a specialist uses ICSI.

Using your frozen embryos

When you are ready to try to get pregnant, the embryos are thawed. The specialist will put them in the womb. A pregnancy may then develop. Usually the specialist puts no more than 1 or 2 embryos in at one time. Both you and the person who provided the sperm for the embryos have to give permission for this.

Using donated eggs, sperm or embryos

Some people choose to use donated eggs, sperm or embryos.

If you did not have eggs collected before cancer treatment, you could use donated eggs or embryos. This may be suitable if there is damage to the ovaries from cancer treatment but you are still able to carry a pregnancy.

Other couples who have had fertility treatment can sometimes donate embryos. They may have several embryos stored and have to decide what to do with them when their family is complete.

You may also choose to have your own eggs fertilised with a donor's sperm. This can be an option if:

- you are in a same-sex relationship
- you are single
- you have a partner who is not able to provide sperm.

Donors

Everyone who donates eggs, sperm or embryos in the UK (a donor) is seen by a doctor at the fertility clinic before they donate. The fertility doctor examines them and asks them questions about their medical history. They also test them for infectious diseases, such as HIV, hepatitis B, hepatitis C and some genetic conditions.

You can be matched to a donor by things such as:

- ethnic origin
- eye colour
- hair colour
- physical build.

The staff at the fertility clinic can give you more information about this.

All UK donors must agree to their details being available in the future. Any child born from fertility treatment using a donor can ask for the donor's details when they are 18 years old.

Some people ask a family member to be their donor. They still have the same tests as any other donor.

If the pituitary gland is affected

Your body needs hormones from the pituitary gland to release eggs. Some cancer treatments can affect the pituitary gland and hormone levels. You may be able to have injections that replace these hormones, so you can release eggs again. These are called gonadotrophin replacement injections. Your cancer doctor or fertility doctor can tell you if this might help you.

If fertility treatment does not work

Unfortunately, there is always a risk fertility treatment will not work. Or eggs or embryos you had frozen may not thaw successfully. This might happen to anyone having fertility treatment, not just people affected by cancer. Your chance of fertility treatment working may depend on:

- your age
- your fertility test results
- the type of cancer treatment you had.

Your fertility doctor will explain this before you start fertility treatment. But it is still upsetting if treatment does not work.

Some people decide to try again. But this can be a hard decision to make. Fertility treatment can be stressful. It can be hard physically as well as emotionally. And if you are paying for treatment, it can be expensive.

You may want to think about whether adoption, fostering or surrogacy are right for you (see pages 47 to 48).

Counsellors in fertility clinics can offer support and advice. There are also organisations that offer counselling, such as the British Infertility Counselling Association (BICA) – see page 57. Your healthcare team might know about support groups in your area. Or you can join our Online Community to talk to other people who are going through the same thing.



Other options for having a child

Some people cannot have fertility treatment. And some decide they do not want treatment and prefer to have a child another way.

If you are thinking about adoption, fostering or surrogacy, it may help to:

- talk about it with family or friends
- talk to someone who has become a parent this way
- find out more from a support organisation (see pages 56 to 59).

Make sure you get all the support and information you need to make the right decision for you.

Adoption and fostering

If you do not want to use medical treatment to help you have a child, you could consider adoption or fostering.

Adoption means becoming the legal parent of a child. Fostering means looking after a child who cannot stay with their own family. This might be short or long term.

People from all backgrounds can apply to be a parent in these ways. Sexuality, gender and disability should not matter. And you do not have to be in a relationship or married.

Adoption and fostering can be rewarding ways to be a parent. An organisation or local authority can arrange this. If you want to find out more, ask:

- your social worker, if you have one
- your local social services department – you can look online for details or ask your GP
- an organisation such as CoramBAAF or Adoption UK (see page 59).

Surrogacy

Surrogacy means a woman, called the surrogate (host), becomes pregnant and gives birth to a baby for you. The pregnancy may be started using IUI or IVF (see page 42). This might be something to think about if you cannot carry a pregnancy.

You could use:

- your own eggs or embryos
- eggs from a donor
- the surrogate's eggs.

Surrogacy laws in the UK are quite complicated. Organisations such as Childlessness Overcome Through Surrogacy (COTS), Surrogacy UK and Brilliant Beginnings can give you more information and support (see page 59).

Getting support

People have different reactions to finding out they are at risk of infertility. You may find it hard to cope with. Or you may accept it quickly and feel that dealing with the cancer is more important. Or you may feel the impact months or years later. You may not have thought about your fertility and if you want to have a child. Or you may have always known you want to.

Worrying about your fertility may seem hard when you are already coping with cancer. It can be difficult waiting to see if your fertility will return. Some people have a sense of loss and sadness. Others feel angry, anxious, lonely or disappointed.

You may find it helps to talk to a partner, family member or friend. If you prefer to talk to a counsellor, your GP or cancer doctor can arrange this. Many hospitals also have specialist nurses who can offer support. Fertility clinics have a counsellor you can talk to.

We have more information that might be helpful in our booklets **Your feelings after cancer treatment** and **Talking about cancer** (see page 52).

Talking to other people in a similar position may help you feel less isolated. Some organisations can provide this, as well as specialist advice and counselling (see page 57). Or you can talk to people online. Our Online Community is a good place to start (see page 54). You can also talk to our cancer support specialists free on **0808 808 00 00**, 7 days a week, 8am to 8pm.



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About our information

We provide expert, up-to-date information about cancer. And all our information is free for everyone.

Order what you need

You may want to order more booklets or leaflets like this one. Visit **be.macmillan.org.uk** or call us on **0808 808 00 00**.

We have booklets about different cancer types, treatments and side effects. We also have information about work, financial issues, diet, life after cancer treatment and information for carers, family and friends.

Online information

All our information is also available online at **macmillan.org.uk/information-and-support** You can also find videos featuring stories from people affected by cancer, and information from health and social care professionals.

Other formats

We also provide information in different languages and formats, including:

- audiobooks
- Braille
- British Sign Language
- easy read booklets
- eBooks
- large print
- translations.

Find out more at **macmillan.org.uk/otherformats**

If you would like us to produce information in a different format for you, email us at **cancerinformationteam@macmillan.org.uk** or call us on **0808 808 00 00**.

Other ways we can help you

At Macmillan, we know how a cancer diagnosis can affect everything, and we're here to support you.

Talk to us

If you or someone you know is affected by cancer, talking about how you feel and sharing your concerns can really help.

Macmillan Support Line

Our free, confidential phone line is open 7 days a week, 8am to 8pm. Our cancer support specialists can:

- help with any medical questions you have about cancer or your treatment
- help you access benefits and give you financial guidance
- be there to listen if you need someone to talk to
- tell you about services that can help you in your area.

Call us on **0808 808 00 00** or email us via our website, **macmillan.org.uk/talktous**

Information centres

Our information and support centres are based in hospitals, libraries and mobile centres. There, you can speak with someone face to face.

Visit one to get the information you need, or if you'd like a private chat, most centres have a room where you can speak with someone alone and in confidence.

Find your nearest centre at **macmillan.org.uk/informationcentres** or call us on **0808 808 00 00**.

Talk to others

No one knows more about the impact cancer can have on your life than those who have been through it themselves. That's why we help to bring people together in their communities and online.

Support groups

Whether you are someone living with cancer or a carer, we can help you find support in your local area, so you can speak face to face with people who understand. Find out about support groups in your area by calling us or by visiting **macmillan.org.uk/selfhelpandsupport**

Online Community

Thousands of people use our Online Community to make friends, blog about their experiences and join groups to meet other people going through the same things. You can access it any time of day or night. Share your experiences, ask questions, or just read through people's posts at **macmillan.org.uk/community**

The Macmillan healthcare team

Our nurses, doctors and other health and social care professionals give expert care and support to individuals and their families. Call us or ask your GP, consultant, district nurse or hospital ward sister if there are any Macmillan professionals near you.

Book reviews

Our volunteers review many books about cancer. These include people's stories of living with cancer, and books for children. Visit **publications.macmillan.org.uk** and search 'book reviews'.

'Everyone is so supportive on the Online Community, they know exactly what you're going through. It can be fun too. It's not all just chats about cancer.'

Mal

Help with money worries

Having cancer can bring extra costs such as hospital parking, travel fares and higher heating bills. If you've been affected in this way, we can help.

Financial guidance

Our financial team can give you guidance on mortgages, pensions, insurance, borrowing and savings.

Help accessing benefits

Our benefits advisers can offer advice and information on benefits, tax credits, grants and loans. They can help you work out what financial help you could be entitled to. They can also help you complete your forms and apply for benefits.

Macmillan Grants

Macmillan offers one-off payments to people with cancer. A grant can be for anything from heating bills or extra clothing to a much-needed break.

Call us on **0808 808 00 00** to speak to a financial guide or benefits adviser, or to find out more about Macmillan Grants.

We can also tell you about benefits advisers in your area. Visit **macmillan.org.uk/financialsupport** to find out more about how we can help you with your finances.

Help with work and cancer

Whether you're an employee, a carer, an employer or are self-employed, we can provide support and information to help you manage cancer at work. Visit **macmillan.org.uk/work**

Work support

Our dedicated team of work support advisers can help you understand your rights at work. Call us on **0808 808 00 00** to speak to a work support adviser (Monday to Friday, 8am to 6pm).

Macmillan Organiser

This includes a records book to write down information such as appointments, medications and contact details. You can also download the app on IOS or Android.

Other useful organisations

There are lots of other organisations that can give you information or support.

Early menopause

British Menopause Society
www.thebms.org.uk

The website has a database of BMS recognised menopause specialists.

The Daisy Network

Email info@daisynetwork.org
www.daisynetwork.org

A support group for women who have had an early menopause. The website gives information about premature menopause and related issues. Paying members have access to extra support, information and online forums.

Fertility treatments

Donor Conception Network
Tel 0207 278 2608

Email enquiries@dcnetwork.org
www.dcnetwork.org

The largest UK network of parents with children conceived through donated sperm or eggs. Supports people thinking about or having treatment. Supplies useful publications for people considering using donated sperm or eggs, and a range of children's story books for children conceived this way.

Human Fertilisation and Embryology Authority (HFEA)

Tel 0207 291 8200

Email

enquiristeam@hfea.gov.uk

www.hfea.gov.uk

Regulates licensed assisted conception treatment and research in the UK. Produces free patient information on licensed UK units with success rates for live births, how to choose a clinic, and a range of useful leaflets. Information is also available on the website.

Counselling and emotional support

British Association for Counselling and Psychotherapy (BACP)

Tel 01455 883 300

Email bacp@bacp.co.uk

www.bacp.co.uk

Promotes awareness of counselling and signposts people to appropriate services. You can search for a qualified counsellor at **itsgoodtotalk.org.uk**

British Infertility Counselling Association

Email info@bica.net

www.bica.net

A charity dedicated to providing the highest standard of counselling and support to people affected by infertility. You can use the website to find a counsellor in your area.

Fertility Network UK

Tel 01424 732361

Email

info@fertilitynetworkuk.org

www.fertilitynetworkuk.org

Provides information, support, telephone counselling and helpful contacts for people with fertility difficulties.

UK Council for Psychotherapy (UKCP)

Tel 0207 014 9955

Email info@ukcp.org.uk

www.psychotherapy.org.uk

Holds the national register of psychotherapists and psychotherapeutic counsellors, listing practitioners who meet exacting standards and training requirements.

Support for the LGBT+ community

LGBT Foundation

Tel 0345 3 30 30 30

Email info@lgbt.foundation

www.lgbt.foundation

Charity offering services, resources and support to the lesbian, gay, bisexual and transgender community. Has a helpline and email advice service.

Pink Parents

Email info@pinkparents.org.uk

www.pinkparents.org.uk

The website has information about gay and lesbian parenting issues, and same-sex adoption in the UK.

Stonewall

Tel 0800 050 20 20

Email info@stonewall.org.uk

www.stonewall.org.uk

Campaigns for equality for people from the LGBT community. Has a section on parenting on its website.

Switchboard LGBT+ Helpline

Tel 0300 330 0630

Email chris@switchboard.lgbt

www.switchboard.lgbt

Charity providing support on the phone, and through email and instant messaging services to lesbian, gay, bisexual and trans communities.

Adoption and fostering

Adoption UK

Tel 07904 793 974

Email

helpline@adoptionuk.org.uk

www.adoptionuk.org

Run by adopters, for adopters or people considering adoption. Offers information, support and advice, including basic legal advice by email. Has free books and videos on adoption and a network of adoptive families who support each other.

CoramBAAF Adoption and Fostering Academy

Tel 020 7520 0300

Email

advice@corambaaf.org.uk

www.corambaaf.org.uk

The website gives comprehensive information on adoption and details of all UK adoption agencies. Also produces books and leaflets for prospective foster carers and adoptive parents, birth families and children.

Surrogacy

Brilliant Beginnings

Tel 020 7050 6875

Email [hello@](mailto:hello@brilliantbeginnings.co.uk)

brilliantbeginnings.co.uk

www.brilliantbeginnings.co.uk

A UK agency that provides help and support to anyone interested in surrogacy.

Childlessness Overcome Through Surrogacy (COTS)

Tel 0333 772 1549

Email kim@surrogacy.org.uk

www.surrogacy.org.uk

Gives information, advice and support to current and potential surrogate mothers and people hoping to be parents. A group called Triangle provides a contact service between surrogates and intended parents.

Surrogacy UK

www.surrogacyuk.org

Voluntary organisation that provides information and support to anyone interested in surrogacy.

Cancer registries

The cancer registry

A national database that collects information on cancer diagnoses and treatment. This information helps the NHS and other organisations plan and improve health and care services. There is one in each country in the UK:

National Cancer Registration and Analysis Service

Tel 020 7654 8000

Email enquiries@phe.gov.uk

www.ncras.nhs.uk

Tel (Ireland) 021 4318 014

www.ncri.ie

Scottish Cancer Registry

Tel 013 1275 7050

Email nss.csd@nhs.net

[www.isdscotland.org/](http://www.isdscotland.org/health-topics/cancer/scottish-cancer-registry)

[health-topics/cancer/](http://www.isdscotland.org/health-topics/cancer/scottish-cancer-registry)

[scottish-cancer-registry](http://www.isdscotland.org/health-topics/cancer/scottish-cancer-registry)

Welsh Cancer Intelligence and Surveillance Unit (WCISU)

Tel 029 2037 3500

Email general.enquiries@wales.nhs.uk

www.wcisuwales.nhs.uk

Northern Ireland Cancer Registry

Tel 028 9097 6028

Email nicr@qub.ac.uk

www.qub.ac.uk/nicr

YOUR NOTES AND QUESTIONS

A series of horizontal green lines for writing notes and questions. The lines are evenly spaced and extend across the width of the page, providing a structured area for student input.

Disclaimer

We make every effort to ensure that the information we provide is accurate and up to date but it should not be relied upon as a substitute for specialist professional advice tailored to your situation. So far as is permitted by law, Macmillan does not accept liability in relation to the use of any information contained in this publication, or third-party information or websites included or referred to in it. Some photos are of models.

Thanks

This booklet has been written, revised and edited by Macmillan Cancer Support's Cancer Information Development team. It has been approved by our Chief Medical Editor, Prof Tim Iveson, Macmillan Consultant Medical Oncologist.

With thanks to: Dr Melanie Davies, Consultant Gynaecologist, Reproductive Medicine; Helen Miller, Fertility Nurse Specialist; Mr Nitish Narvekar, Consultant Gynaecologist, Reproductive Medicine; Ms Adeola Olaitan, Consultant Gynaecologist and Yvonne Wedden, Senior Sister in Fertility.

Thanks also to the people affected by cancer who reviewed this edition, and those who shared their stories.

We welcome feedback on our information. If you have any, please contact **cancerinformationteam@macmillan.org.uk**

Sources

We have listed a sample of the sources used in the booklet below. If you would like more information about the sources we use, please contact us at **cancerinformationteam@macmillan.org.uk**

Human Fertilisation and Embryology Authority. Code of practice. 8th edition. October 2009 (updated October 2017).

National Institute for Health and Care Excellence (NICE). Fertility problems: assessment and treatment. CG156. February 2013 (updated September 2017).

Royal College of Nursing. Fertility preservation: clinical professional resource. 2017.

Can you do something to help?

We hope this booklet has been useful to you. It's just one of our many publications that are available free to anyone affected by cancer. They're produced by our cancer information specialists who, along with our nurses, benefits advisers, campaigners and volunteers, are part of the Macmillan team. When people are facing the toughest fight of their lives, we're there to support them every step of the way.

We want to make sure no one has to go through cancer alone, so we need more people to help us. When the time is right for you, here are some ways in which you can become a part of our team.



Share your cancer experience

Support people living with cancer by telling your story, online, in the media or face to face.

Campaign for change

We need your help to make sure everyone gets the right support. Take an action, big or small, for better cancer care.

Help someone in your community

A lift to an appointment. Help with the shopping.
Or just a cup of tea and a chat. Could you lend a hand?

Raise money

Whatever you like doing you can raise money to help.
Take part in one of our events or create your own.

Give money

Big or small, every penny helps.
To make a one-off donation see over.

Call us to find out more

0300 1000 200

macmillan.org.uk/getinvolved

Please fill in your personal details

Mr/Mrs/Miss/Other

Name

Surname

Address

Postcode

Phone

Email

Please accept my gift of £

(Please delete as appropriate)

I enclose a cheque / postal order /
Charity Voucher made payable to
Macmillan Cancer Support

OR debit my:

Visa / MasterCard / CAF Charity
Card / Switch / Maestro

Card number

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Signature

Date / /

Don't let the taxman keep your money

Do you pay tax? If so, your gift will be worth 25% more to us – at no extra cost to you. All you have to do is tick the box below, and the tax office will give 25p for every pound you give.

- ☐ I am a UK tax payer and I would like Macmillan Cancer Support to treat all donations I make or have made to Macmillan Cancer Support in the last 4 years as Gift Aid donations, until I notify you otherwise.

I understand that if I pay less Income Tax and/or Capital Gains Tax than the amount of Gift Aid claimed on all my donations in that tax year it is my responsibility to pay any difference. I understand Macmillan Cancer Support will reclaim 25p of tax on every £1 that I give.

Macmillan Cancer Support and our trading companies would like to hold your details in order to contact you about our fundraising, campaigning and services for people affected by cancer. If you would prefer us not to use your details in this way please tick this box. ☐

In order to carry out our work we may need to pass your details to agents or partners who act on our behalf.



If you'd rather donate online go to macmillan.org.uk/donate

Please cut out this form and return it in an envelope (no stamp required) to:
Supporter Donations, Macmillan Cancer Support, FREEPOST LON15851,
89 Albert Embankment, London SE1 7UQ

This booklet is about how cancer and its treatments can affect your fertility (the ability to have children). It is for anyone who needs information on this before, during or after cancer treatment. This information is for you whether you are in a relationship or not and whatever your sexual orientation.

The booklet gives information about preserving fertility, testing fertility, fertility treatments to start a pregnancy and other options for having a child.

We're here to help everyone with cancer live life as fully as they can, providing physical, financial and emotional support. So whatever cancer throws your way, we're right there with you. For information, support or just someone to talk to, call **0808 808 00 00** (7 days a week, 8am to 8pm) or visit **macmillan.org.uk**

Would you prefer to speak to us in another language? Interpreters are available. Please tell us in English the language you would like to use. Are you deaf or hard of hearing? Call us using NGT (Text Relay) on **18001 0808 808 00 00**, or use the NGT Lite app.

Need information in different languages or formats? We produce information in audio, eBooks, easy read, Braille, large print and translations. To order these, visit **macmillan.org.uk/otherformats** or call our support line.

