

MACMILLAN
CANCER SUPPORT

CANCER TREATMENT AND FERTILITY

INFORMATION FOR MEN



When I was initially diagnosed, fertility didn't really enter my head. It was later that the doctor advised me the treatment might affect my ability to have children.

Robert, diagnosed with Hodgkin lymphoma



About this booklet

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

The booklet explains:

- how cancer treatments may affect fertility
- how fertility can be preserved before cancer treatment
- how fertility can be tested
- fertility treatments 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 women** (see page 50).

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 54 to 57, there are details of other organisations that can help.

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](https://www.macmillan.org.uk/community)). The others are from people who have chosen to share their story with us. This includes Robert, who is on the cover of this booklet. To share your experience, visit [macmillan.org.uk/shareyourstory](https://www.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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CANCER AND FERTILITY

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What is fertility?

Your fertility means being able to start a pregnancy. For this to happen, your sperm needs to fertilise a woman's egg.

The parts of your body that help you do this are called the reproductive system. This includes the testicles, penis and prostate gland.

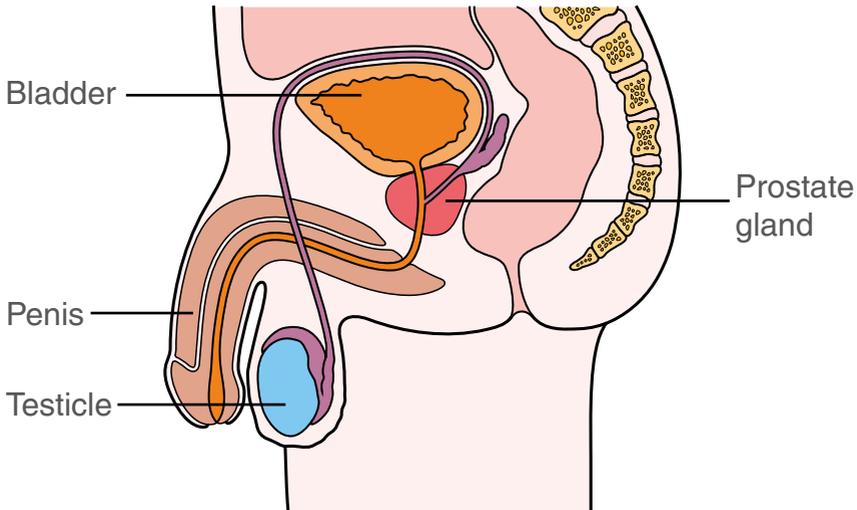
The pituitary gland is a small gland at the base of the brain. It releases hormones (chemical messengers in the body) that control how your reproductive system works.

Your fertility depends on:

- having healthy sperm
- being able to get an erection (hard-on) and to ejaculate (come)
- having the right hormone levels.

The testicles start to make and store sperm from puberty onwards. This process is controlled by hormones that are produced by the pituitary gland and testicles. The testicles make the hormone testosterone. This hormone is also important for sex drive and getting an erection.

The male reproductive system



To start a pregnancy, you will ejaculate during vaginal sex. The fluid you ejaculate is called semen. Semen is mostly made up of fluid from the prostate gland. It also contains sperm from the testicles. If one of the sperm reaches the woman's egg, the egg may be fertilised, starting a pregnancy. Some people have difficulty starting a pregnancy in this way and may need treatment to help them (see pages 36 to 43).

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 treatment might make you infertile (unable to start a pregnancy), they should talk to you about the possibility of storing sperm. You usually do this before your cancer treatment starts. It is sometimes called sperm banking. If you become infertile, you may be able to use the stored sperm to have a child in the future.

Your cancer doctor can refer you to a fertility clinic straight away. This means that having your sperm stored should not delay your cancer treatment. Sometimes, cancer treatment has to start quickly. In this case there may not be time for sperm banking.

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 sperm or testicular tissue?
- Should I use contraception during cancer treatment?

After cancer treatment

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

'The consultant started the conversation about fertility, as there was a chance the treatment could affect it.'

Robert

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:

- stop or reduce sperm production
- cause problems with erections or ejaculating
- affect hormone (testosterone) production.

Doctors may not be able to predict how your fertility will be affected. But your 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.

Cancer and cancer treatment can also change how you feel about sex. It is common to have problems with sex drive and getting an erection (erectile dysfunction) during or after cancer treatment. Talking about sex and fertility can be difficult, and you may feel embarrassed. But your healthcare team are used to having these conversations and they will try to answer your questions. It is important that you get all the information and support you need.

Contraception during cancer treatment

Some treatments may damage sperm. This can affect a baby if a pregnancy is started 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 difficult 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.

Being able to get an erection and ejaculate does not always mean you are fertile. This is because sometimes the semen may not have sperm in it (see page 9). After cancer treatment, you can have your semen tested (see page 35) to find out if you are producing healthy sperm. Your cancer doctor or nurse will tell you how long you should wait after treatment before getting your semen tested. Getting your semen tested is the only way to know if your fertility has recovered.

Chemotherapy

Chemotherapy uses anti-cancer (cytotoxic) drugs to destroy cancer cells. It can reduce or stop sperm production. This can affect fertility. This is usually temporary, but for some people it can be permanent.

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

- 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.

Sometimes it is possible to choose a chemotherapy treatment that is less likely to affect your fertility. Your cancer doctor will tell you if this is an option for you.

It may take time for your fertility to recover after chemotherapy. Problems with sperm production should not stop you getting erections or enjoying sex.

Radiotherapy

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

- affecting sperm production
- reducing testosterone
- causing erection problems.

Your risk of infertility depends on the dose and type of radiotherapy you are getting. 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 destroys cancer cells in the treated area. But it can also affect some surrounding healthy tissue.

Radiotherapy to the pelvis can reduce the amount and quality of sperm you produce. This may be temporary or permanent. When you ejaculate, you may notice that only a small amount of fluid comes out. Or you may notice that no fluid comes out. This means you have stopped producing semen. This is called dry ejaculation.

Radiotherapy to the pelvis may also reduce the amount of testosterone you produce. This can affect:

- sperm production
- your sex drive
- your ability to get an erection (erectile dysfunction) – see [macmillan.org.uk/information-and-support/coping/relationships/treatment-effects-sexuality-men](https://www.macmillan.org.uk/information-and-support/coping/relationships/treatment-effects-sexuality-men) for more information.

You can take testosterone replacement therapy (TRT) to help. This can help with erections, but it will not make the testicles produce sperm. See page 39 for more information on TRT.

If you have radiotherapy directly to the testicles, it will cause permanent infertility. You may still produce semen when you ejaculate. But it will not contain sperm.

Radiotherapy can damage nerves or blood vessels to the penis. If this happens, you may have problems getting erections. You may feel embarrassed, but you should talk to your doctor if you are having problems. There are treatments that can help with this.

The radiographer may use special 'shielding cups' to cover and protect the testicles during radiotherapy to nearby areas. Or you may have intensity-modulated radiotherapy (IMRT). This shapes the radiotherapy beams to fit the outline of tumours more precisely. This means less damage to areas near the tumour. Your cancer doctor can explain if these treatments are suitable for you.

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. Our booklet **Understanding donor stem cell (allogeneic) transplants** provides more information on this type of treatment. See page 50 for information on how to order it.

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 testicles to produce testosterone and sperm.

After radiotherapy, the pituitary gland may stop producing gonadotrophins. This may happen some months or years after radiotherapy.

If you want to start a pregnancy, your doctor may be able to give you gonadotrophin-replacement injections. These can help you produce sperm (see page 40).

Radioactive iodine

Radioactive iodine is a type of radiotherapy used to treat thyroid cancer. It does not usually affect fertility. There is a slightly increased risk if you have several treatments with radioactive iodine. Our booklet **Understanding thyroid cancer** explains the risks in more detail (see page 50).

Surgery

Surgery can reduce sperm and testosterone production. It can also cause problems with erections and ejaculation. Types of surgery that can affect your fertility are:

- having the testicles removed
- having the prostate gland removed
- some types of surgery to the pelvic area or the tummy (abdomen)
- surgery to the pituitary gland.

Surgery to the testicles

Having one testicle removed for testicular cancer should not affect your fertility. But having testicular cancer may already be causing problems with sperm production. If this is still a problem after surgery, fertility treatments can help.

Having both testicles removed causes permanent infertility. This may be done if testicular cancer comes back.

Surgery to the prostate gland

Prostate cancer may be treated with surgery. If the prostate gland is removed, you will still make sperm, but it will not come out through the penis. It will be absorbed back into the body.

After prostate surgery, you may also have problems with erections (erectile dysfunction) or lose interest in sex. You may feel embarrassed, but prostate cancer doctors are used to talking about these issues and can give you advice. There are treatments that can help with this.

Other surgery to the pelvic area or abdomen

Treatment for testicular cancer and some other types of cancer may involve surgery to remove lymph nodes in the tummy area (abdomen). This operation is called a retroperitoneal lymph node dissection. It can cause nerve damage that makes sperm go into the bladder instead of coming out through the penis when you orgasm. This is called retrograde ejaculation. If this happens, you pass the sperm out harmlessly in your urine (pee). New surgical techniques mean this is now less common.

Other operations can damage nerves and blood vessels to the penis. This may cause problems with erections and ejaculation. This can include surgery to the:

- prostate
- bladder
- bowel
- penis
- spine.

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. These stimulate the testicles to produce testosterone and sperm.

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 testicles stop producing testosterone and sperm. If you want to start a pregnancy, your doctor may be able to give you gonadotrophin-replacement injections (see page 41).

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 may use it to treat prostate cancer or breast cancer in men.

Side effects can include:

- loss of sex drive
- problems getting or keeping an erection.

These may improve gradually after treatment ends. This can depend on whether you have had other treatments, such as pelvic radiotherapy or surgery. Your cancer doctor can give you more information.

There are different ways to help improve these side effects. Your cancer doctor or fertility doctor can give you more information about this.

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. Our website has more details about these treatments.



PRESERVING YOUR FERTILITY

Ways of preserving 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. Even if you have a low chance of becoming infertile, your doctor may refer you to a fertility doctor before you start cancer treatment. The Human Fertilisation and Embryology Authority (HFEA) has information about NHS and private fertility clinics (see page 54).

The fertility doctor may advise you to store (bank) sperm. Freezing and storing sperm is a safe procedure that has been used for many years. You can store sperm if you have reached puberty and are producing sperm.

Your sperm can then be used in the future to try to start a pregnancy. Your fertility doctor can talk to you about fertility treatments that may help in your situation. They will also offer you counselling or further support.

Most fertility clinics will see you before cancer treatment starts. But sometimes you may not have time to store sperm, as the cancer treatment needs to start straight away. It is usually not advised to store sperm after treatment starts. Your cancer doctor or specialist nurse can talk to you about this.

Collecting sperm

Before sperm samples are stored, you will be asked to sign a consent form that explains how your sperm 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 sperm.

You usually provide semen samples by masturbation in a private room in the fertility clinic. You may feel embarrassed about doing this. The staff at the clinic will be very understanding and will try to put you at ease. If you have a partner, they can be with you if you want.

Sometimes it may be possible to collect a sample at home and take it to the clinic. You need to keep the sample warm and take it to the fertility clinic soon after producing it. You can talk to your nurse or doctor about this.

If possible, you may be asked to provide 2 or 3 samples over a week. If you can only give one sample before cancer treatment starts, it may still be enough. Your fertility doctor or nurse will tell you how many samples you need to give. They usually advise you not to have sex or masturbate for a couple of days before collecting each sample. This allows more sperm to be collected.

Sperm extraction

If you cannot give a semen sample by masturbation, a specialist doctor may be able to collect sperm from the testicle. Before they do this, you usually have a local anaesthetic and sedation.

Or sometimes you have a general anaesthetic. The doctor can collect sperm in one of the following ways:

- **Percutaneous epididymal sperm aspiration (PESA).**
The doctor passes a fine needle into the epididymis. This is a tube on the side of each testicle that stores and carries sperm. They withdraw (aspirate) fluid containing sperm using the fine needle.
- **Testicular sperm aspiration (TESA).** The doctor passes a fine needle into a testicle and withdraws (aspirates) fluid containing sperm.
- **Testicular sperm extraction (TESE).** The doctor takes tiny bits of tissue from the testicle.

The fluid or tissue they collect is looked at under a microscope in a laboratory. Any sperm are removed, frozen and stored for future use.

Sperm extraction can be done before cancer treatment starts. It can sometimes be done after treatment if you have not had sperm stored.

For some types of cancer, you may have sperm extracted during surgery to treat the cancer. Your doctor will tell you if this is an option for you.

Urinary sperm retrieval

If you have retrograde ejaculation (see page 19), your sperm and semen go into the bladder instead of out of the penis when you orgasm.

Sometimes specialists can collect the sperm from your urine (pee). They will give you a drink that makes your urine less harmful to your sperm. They will ask you to pass urine and then masturbate. After you ejaculate, you pass urine again. They quickly collect the sperm from your urine, prepare it and store it.

'I had my appointments at the fertility clinic very quickly, due to the urgency of getting it done before starting treatment.'

Robert

Storing sperm

The NHS often provides sperm 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 storage is funded, using the sperm 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.

Sperm is usually stored for at least 10 years. If you are affected by cancer, it can be stored for up to 55 years. Your samples will be frozen and stored in a tank of liquid nitrogen. This is called cryopreservation.

'My girlfriend and I talked about it and decided that it would be a good thing to do sperm banking, so that it safe-guarded for the future.'

Robert

Freezing testicular tissue

Your body only starts making sperm after puberty. If you need cancer treatment before puberty, you cannot store sperm.

Boys who have not reached puberty may have testicular cryopreservation as part of a research trial. This means collecting and freezing small samples of tissue from the testicles.

Researchers are seeing if the tissue can be used to produce sperm. They are looking at ways of doing this in the laboratory. They are also researching whether the tissue can produce sperm if it is put back into the body after cancer treatment. This research is still at an early stage. It has not been used to start any pregnancies and doctors do not fully know the risks involved. Very few centres in the UK offer this.



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 start a pregnancy 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 have a baby. This is to make sure you are producing healthy sperm.

Often it is hard to know exactly how or when your fertility will recover. Fertility testing can check if you are producing sperm and if the sperm are healthy (see page 35).

You may be able to store your sperm before cancer treatment (see pages 24 to 25). If your fertility does not return after cancer treatment, you may be able to use your own frozen sperm to help you have a baby. If you did not store sperm before cancer treatment, you may decide to use donor sperm (see page 42).

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 55.

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 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. You can also learn about the risks in our booklet **Cancer and genetics – how cancer sometimes runs in families** (see page 50).

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:

- adoption or fostering (see pages 44 to 45)
- co-parenting – an agreement to conceive and raise a child with someone who is not your partner
- surrogacy (see page 45).

There are laws about becoming a legal parent in all these situations. The Human Fertilisation and Embryology Authority (HFEA) has more information. If you are in a same-sex relationship, organisations such as Stonewall and Pink Parents also provide information and support. You can find their details in the useful organisations section (see pages 55 to 56).

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 (BICA) and Fertility Network UK (see pages 54 to 55).

Fertility testing

After cancer treatment, you can have your semen tested to find out if you are producing healthy sperm. Being able to get an erection and ejaculate does not always mean you are fertile. Sometimes the semen may not have any sperm in it. Your cancer doctor or nurse can tell you more about when you can have these tests.

When you are ready, you can talk to your cancer doctor or GP. They can arrange a time for you to give a sample by masturbation. This sample will be looked at in a laboratory to see if you are producing sperm. This test is available free on the NHS. You can also pay to have it done privately. If needed, the test can be repeated to see if things have changed. If you had sperm frozen before cancer treatment, you can also ask for this to be tested (see page 28).

If you cannot give a sample by masturbation, you may be able to have a sample extracted from a testicle (see page 26). Your fertility doctor can tell you if this is an option for you.

A fertility specialist will talk to you about the results of the tests.

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.

The person you have fertility treatment with will need to have tests and answer questions about their lifestyle too.

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 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). The HFEA also provides advice about choosing a clinic (see page 54).

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, it is important to remember these rules apply to both you and the person you have fertility treatment with. 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.
- 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 sometimes more in the womb to see if a pregnancy develops. Any other embryos can be stored for future use.

Fresh or frozen sperm can be used with any of these treatments.

Sometimes sperm samples that have been collected using surgery (see page 26) or that have been frozen have a lower sperm count or quality. ICSI is usually used in this situation.

If you decide to use your frozen sperm, it will be carefully thawed in a laboratory when it is needed. If you did not store sperm before cancer treatment, it may still be possible to use your fresh sperm. Your fertility doctor can talk to you about your options.

If your sperm count is low

If you are producing sperm, but not very many, you may be able to start a pregnancy by having sex. But your chances of starting a pregnancy are likely to be higher using ICSI or IVF. You may also decide to use sperm you stored before cancer treatment.

If your hormone levels are low

Your body needs hormones from the pituitary gland and the testicles (see page 8) to produce sperm. Some cancer treatments can affect your hormone levels (see page 19). Low testosterone levels can make it difficult to get an erection and can leave you with a lower sex drive. It can also cause other problems, such as thinning of the bones (osteoporosis), tiredness and a low mood.

If your testosterone levels do not recover, you can take testosterone replacement therapy (TRT). You usually have TRT as injections or a gel or patch on your skin. TRT can help with sex drive and erections. But your body may not be able to make sperm when you are taking it. This means you may not be able to make someone pregnant while taking it. But you should still use contraception if you do not want to start a pregnancy.

If you want to start a pregnancy, it may be possible to have gonadotrophin replacement injections instead. You usually have these injections for up to 2 years. After that, you start taking TRT again.

If your body does not produce sperm

If your body does not produce sperm, you cannot start a pregnancy by having sex. If you stored sperm before cancer treatment, this can be used with IVF, ICSI or IUI. Or you may choose to use sperm from a donor. If the cancer treatment has affected the pituitary gland, but not the testicles, you may be able to have gonadotrophin replacement injections. These may help start sperm production again. You have the injections regularly until you have been able to.

- start a pregnancy by having sex
- give sperm samples to use with IVF or ICSI.

It can take several months of injections to start sperm production. Your fertility doctor will tell you how often they will test your sperm to see if the injections are working. Usually you have injections for up to 2 years. After you stop these injections, you stop producing sperm.

If you cannot have sex

Rarely, cancer treatment causes changes that mean you might not be able to have sex. You may find it difficult to get or keep an erection. This is called erectile dysfunction. We have more information on erectile dysfunction on our website (see page 50). This can be very difficult to cope with. If your body is still producing sperm, your doctor may be able to collect sperm for IVF or ICSI. If you stored sperm before your cancer treatment, you may be able to use this. Or you may decide to use sperm from a donor.

Using donated sperm

If your sperm was not stored before cancer treatment and it has made you infertile, you could use donated sperm. Choosing to use donated sperm can be a hard decision. The fertility doctor will offer you and a partner counselling to help.

You may have to wait to find a suitable donor. Some people decide to use sperm from sperm banks in other countries.

Treatment with donor sperm may not be funded by the NHS in some areas of the UK. The staff at your fertility clinic will know more and can talk to you about this.

Donors

Everyone who donates sperm 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 fertility treatment does not work

Unfortunately, there is always a risk fertility treatment will not work. This might happen to anyone having fertility treatment, not just people affected by cancer.

Your chance of starting a pregnancy may be affected by the type of cancer treatment you had and your fertility test results. 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 emotional and stressful. 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.

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 55. Your healthcare team might also 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. Visit **community.macmillan.org.uk**



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 54 to 57).

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 56).

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 38). This might be something to consider if you:

- are single
- have a partner who is unable to carry a pregnancy.

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 pages 56 to 57).

A man with dark hair, wearing a blue zip-up hoodie, is shown from the chest up. He has a thoughtful or slightly concerned expression, looking off to the side. The background is a soft-focus green, suggesting an outdoor setting with trees or bushes. The text is overlaid on the right side of the image.

'We were able to talk with one of the nurses at the Macmillan centre, who created a very friendly, welcoming atmosphere. It was lovely to know that such a place existed, and that there was so much support and knowledge at your disposal.'

Robert, diagnosed with Hodgkin lymphoma

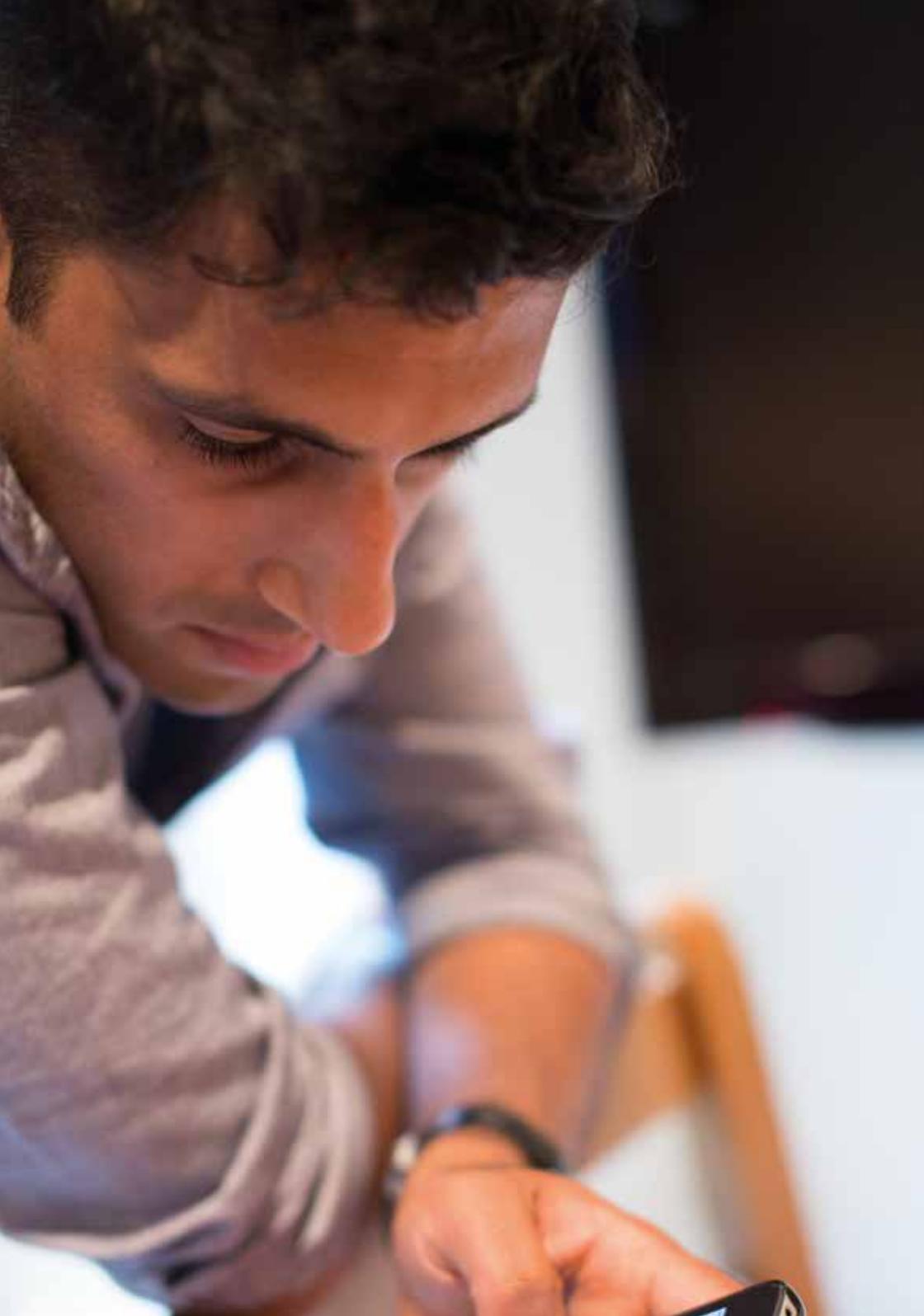
Getting support

People have different reactions to finding out they are at risk of infertility. You may find it hard to cope with. 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. Our booklet **Talking about cancer** lists organisations who can support you (see page 50).

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 pages 54 to 55). Or you can talk to people online. Our Online Community is a good place to start (visit **community.macmillan.org.uk**). 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](https://www.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](https://www.be.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](https://www.be.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](https://www.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](https://www.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](https://www.macmillan.org.uk/publications) 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.

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 in this way.

Human Fertilisation and Embryology Authority (HFEA)

Tel 0207 291 8200

Email enquiries@
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@](mailto:info@fertilitynetworkuk.org)

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@](mailto:helpline@adoptionuk.org.uk)

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@](mailto:advice@corambaaf.org.uk)

corambaaf.org.uk

www.corambaaf.org.uk

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/
health-topics/cancer/
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](mailto: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

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 Cheryl Fitzgerald, Consultant Gynaecologist, Reproductive Medicine; Dr Marco Gaudoin, Medical Director, Fertility; and Helen Miller, Fertility Nurse Specialist.

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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Security 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.

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