



Fertility and Cancer

A guide for people with cancer,
their families and friends

Practical
and support
information

Cancer Council Helpline

13 11 20



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Note to reader

Always consult your doctor about matters that affect your health. This booklet is intended as a general introduction to the topic and should not be seen as a substitute for medical, legal or financial advice. You should obtain appropriate independent professional advice relevant to your specific situation and you may wish to discuss issues raised in this book with them.

All care is taken to ensure that the information in this booklet is accurate at the time of publication. Please note that information on cancer, including the diagnosis, treatment and prevention of cancer, is constantly being updated and revised by medical professionals and the research community. Cancer Council Australia and its members exclude all liability for any injury, loss or damage incurred by use of or reliance on the information provided in this booklet.

Cancer Council Australia

Cancer Council Australia is the nation's peak non-government cancer control organisation. Together with the eight state and territory Cancer Councils, it coordinates a network of cancer support groups, services and programs to help improve the quality of life of people living with cancer, their families and carers. This booklet is funded through the generosity of the people of Australia. To make a donation and help us beat cancer, visit Cancer Council's website at www.cancer.org.au or call your local Cancer Council.



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Introduction

It is common for people affected by cancer to wonder about their ability to have children now or in the future. Sometimes cancer and its treatment can affect a person's ability to conceive a child or maintain a pregnancy (fertility).

This booklet answers many common questions about fertility and suggests ways to bring up this topic with your medical team.

There is general information about:

- preserving your fertility before cancer treatment
- protecting it during treatment
- what your options may be if you have finished treatment.

Dealing with a cancer diagnosis and fertility issues will probably bring up many emotions. For some people, having children of their own is a long-held dream. Other people may not feel ready to think about it.

If you want to become a parent after cancer or add to your family, being aware of your fertility choices and being flexible in your approach may increase the chances of realising your goal.

Your first step should be talking with your medical team, who can discuss your available options and the potential risks and benefits.

tip

You may want to read *Questions for reflection* on pages 76–77, which may help you make a well-informed decision about your fertility after cancer.

We suggest that you read only the sections that are most relevant to you. You may also want to seek the support of loved ones, trained health professionals or someone who has been in a similar situation.

You might also like to pass this booklet on to your family and friends, so they can better understand your situation.

Some medical terms that may be unfamiliar to you are explained in the glossary on page 80.

How this book was developed

The information in this booklet is based on the experiences of health professionals and people with cancer and their partners who took part in a research study.

The quotes throughout this booklet represent the real experiences of people who were interviewed, however names have been changed to protect people's privacy.

“ I learnt to accept what I can't change, and focus on the choices I have. That is truly empowering. ” *Emma*

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Reproduction and fertility

Many factors can affect a person's fertility. It naturally declines with age (see page 14), but it can also be affected by being under- or overweight, smoking or having a health issue, such as endometriosis, pelvic disease or cancer.

Fertility problems may be the result of either the woman or the man being unable to conceive, or both.

If you aren't able to conceive or carry a pregnancy to term after one year of regular, unprotected sex, it's known as infertility.

How cancer can affect fertility

Cancer and its treatment may cause fertility problems. The impact will depend on the type of cancer and treatment you have.

- Women may not produce enough eggs, have problems with the hormones signalling between the brain and the ovaries, or have damaged reproductive organs. Reproductive organs may be removed during an operation. See *Women's fertility and cancer treatment* on pages 22–29.
- Men may experience fertility issues related to the sperm production and quality – for instance, the sperm may not have the right characteristics, or there can be issues related to sperm transport, such as movement (motility) and blocked pathways that carry sperm. Sometimes reproductive organs are removed during an operation. See *Men's fertility and cancer treatment* on pages 40–45.

There are ways to overcome infertility. Many people have medical procedures to help them conceive – these are known as assisted reproductive technology or fertility treatments. Some common fertility treatment options are described in this booklet.



Infertility is relatively common – one in six Australian couples has problems conceiving or falling pregnant for a range of reasons. Infertility can be difficult to come to terms with. For information about emotional and relationship issues, see pages 66–73.

The reproductive systems

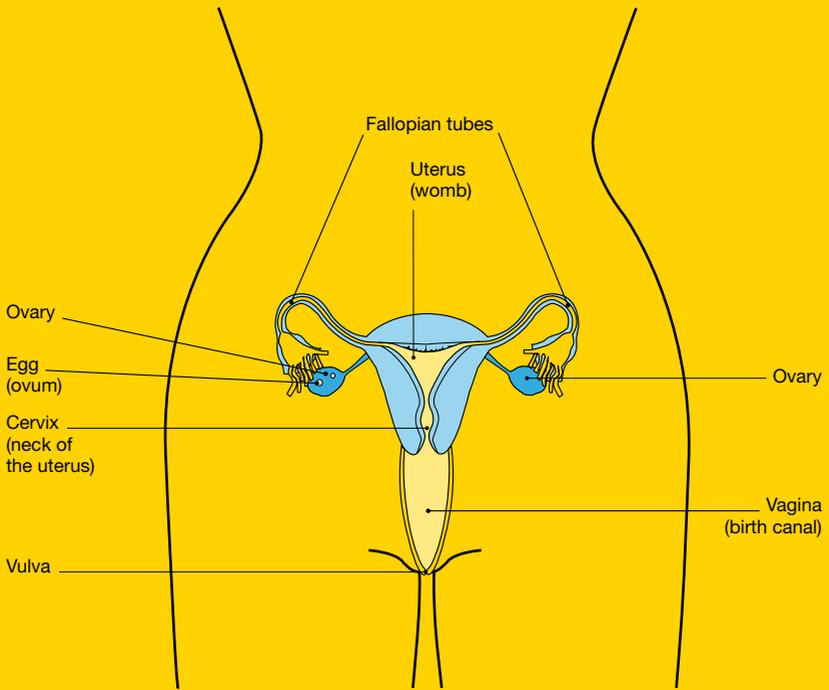
Being familiar with the male and female reproductive systems may help you to understand fertility issues and treatments.

A healthy woman of childbearing age releases an egg (ovum – the female reproductive cell) each month. This is called ovulation. The egg travels from the ovary, down the fallopian tube and into the uterus.

Sperm (the male reproductive cell) is contained in the semen. This fluid is ejaculated from the penis during orgasm (sexual climax).

If sperm reaches a woman's egg, this is called fertilisation. This may lead to implantation into the lining of the uterus, where the cells can multiply and develop into a foetus. If it is not fertilised, the egg and lining of the uterus will come out of the body during the woman's monthly period (menstruation).

The female reproductive system

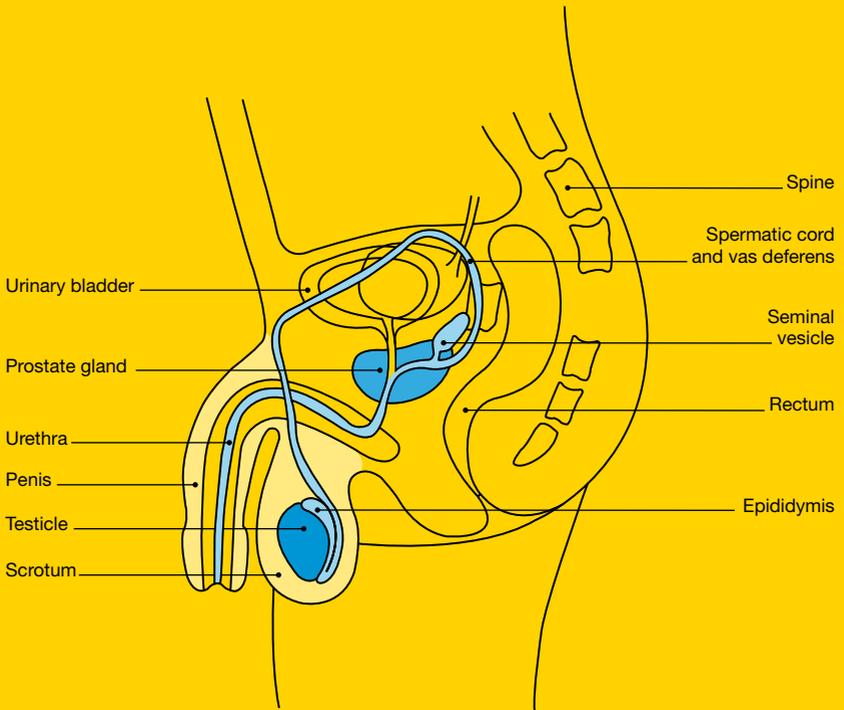


The female reproductive system allows a woman to conceive a baby and become pregnant. It consists of the following organs:

- **Ovaries** – Two small, oval-shaped organs in the lower abdomen. They contain follicles that hold immature eggs (oocytes) that eventually become mature eggs. The ovaries also release the female hormones oestrogen and progesterone.
- **Uterus (womb)** – The hollow organ where a baby (foetus) grows. It is joined to the vagina by the cervix.
- **Fallopian tubes** – Tubes that connect each ovary to the uterus.
- **Cervix** – The lower, cylinder-shaped neck of the uterus. It produces moisture to lubricate the vagina. It also holds a foetus in the uterus during pregnancy and widens during childbirth.
- **Vagina (birth canal)** – A muscular tube that extends from the opening of the uterus to the vulva. It is the passageway through which menstrual blood flows, sexual intercourse occurs and a baby is born.
- **Vulva** – The external part of a woman's sex organs.

Women usually menstruate until the age of 45–55, when monthly periods end. This is called menopause and it indicates the natural end of a woman's reproductive years. If it occurs before age 45, this may be called early menopause – see pages 28–29.

The male reproductive system



The male reproductive system allows a man to father a baby. It consists of the following organs:

- **Testicles** – Two small, egg-shaped glands that make and store sperm, and produce the male hormone testosterone, which is responsible for the development of male characteristics, sexual drive (libido) and the ability to have an erection.
- **Scrotum** – The pouch of skin behind the penis containing the testicles.
- **Epididymis** – A structure that stores immature sperm, attached to the back of each testicle and the spermatic cord.
- **Spermatic cords and vas deferens** – The tubes running from each testicle to the penis. They contain blood vessels, nerves, and lymph vessels, and carry sperm towards the penis.
- **Penis** – The main external sex organ, through which urine and semen pass.
- **Prostate** – A gland that produces fluid which makes up a large part of semen. It is located near nerves, blood vessels and muscles needed to control bladder function and to achieve an erection.
- **Seminal vesicles** – Glands close to the prostate that produce part of the semen.



Key questions

This chapter covers some common questions men and women ask about fertility and cancer. Some of your responses to these questions will depend on your personal views and preferences.

You should seek independent legal advice for complex fertility questions. For example:

- If my partner dies after we've stored embryos, would they have been willing for me to use the embryos?
- What are the rules and ethical considerations about donating unused embryos?
- If I use a surrogate, what are the issues I need to consider?
- If my child is conceived using donor tissue, what are their rights at age 18?

Q: Should I have a child after I've had cancer?

A: The way you think and feel about having a child will probably be affected by the diagnosis. Some people are reluctant to start a family because they worry about dying or doubt their ability to physically and emotionally raise a child. Others do have a child after cancer.

There is no simple answer to this personal question. You should seek advice from a fertility specialist or counsellor, who can talk through the pros and cons of your situation. If you have a partner, you may want to discuss your family plans together. The question list on pages 76–77 may help you to consider this.

Q: When should I discuss fertility or see a specialist?

A: It's best to talk about your fertility options before cancer treatment begins. Your oncologist will be able to refer you to a fertility specialist and may help you get an appointment before you start treatment.

If you don't have the opportunity to see a fertility specialist before treatment, ask your GP or oncologist for a referral to discuss your future options.

tip

For some suggestions about how to raise the topic of fertility, see *Talking about fertility* on pages 19–21.

Q: What is my risk of infertility?

A: The American organisation Livestrong provides reproductive information for people affected by cancer, including an infertility risk calculator.

Men or women select their cancer type or treatment and the calculator predicts how their fertility could be affected. See www.livestrong.org/we-can-help/fertility-services.

It's important to remember that this calculator is a general guide only. You should discuss your individual risk with a local fertility specialist who can give you personalised advice and support.

Q: How does age affect fertility after cancer?

A: Cancer treatment plays a large role in determining your fertility, but your age also affects it.

Women – Age is considered the greatest indicator of future pregnancies for women. Regardless of cancer, the older you are, the harder it becomes to fall pregnant.

The younger you are at the time of cancer treatment, the less likely you are to become infertile. Generally, it's expected that a woman who is treated with chemotherapy before the age of 30 is more likely to get pregnant after treatment has finished.

However, you may be at risk of premature ovarian failure and/or early menopause (pages 27–29).

Men – Fertility levels naturally decline between the ages of 40–50. Cancer treatment can cause infertility in men of all ages, as well as boys who have not reached puberty at the time of their treatment.

Q: Does having periods mean a woman is fertile?

A: Women's periods (menstruation) may stop or become irregular as a result of some cancer treatments. If periods stop permanently (menopause), this causes infertility.

A woman sometimes regains her periods after finishing treatment, but this may or may not indicate she is fertile.

Doctors don't always know how each person's body will react to their particular treatment. Some women return to a normal reproductive state within a couple of months of finishing treatment, but some don't.

Q: If I'm fertile after treatment, should I use frozen tissue?

A: In general, it's considered better to conceive naturally using fresh eggs or sperm you are producing. If you stored sperm, eggs or embryos before treatment, talk to your fertility specialist about your options, including if you would like to use them and how long you would like to keep them.

Q: How long can reproductive tissue be frozen?

A: Sperm, eggs and embryos can be stored for many years, even decades. There have been some cases where healthy children have been successfully produced from sperm that was frozen for 30 years.

“Advances in medical technology helped treat my cancer, then gave my wife and I the chance to become parents. I'm amazed at what was possible.”  *Craig*

Q: Do fertility treatments cause cancer?

A: There are no direct links between fertility treatments and cancer. However, some fertility treatments require you to take additional hormones or stimulate your hormones, and it's still unknown how safe this is for people with hormone-sensitive cancer. Talk to your cancer or fertility specialist about the risks associated with fertility treatment.

Q: Will having children cause cancer recurrence?

A: Research shows that pregnancy does not increase the chances of cancer recurrence. However, studies have mainly focused on women with breast cancer. Further studies are being done, so it's best to discuss this issue with your specialist. For more information about pregnancy and cancer, see page 18.

Studies to date also suggest that survival rates for people who have children after cancer treatment are as good as for those who don't have children after treatment.



Some people wonder how long they should wait to conceive after cancer treatment. This depends on many factors, including the type of cancer, so discuss the timing with your doctor. Some specialists advise waiting two years after a cancer diagnosis. This may be to allow your body to recover, or to see if you have cancer recurrence during this time.

Q: Are children of cancer survivors more likely to have health problems?

A: Research to date suggests that children born to cancer survivors (after treatment has ended) are no more likely to have birth defects than the general population.

Studies show that if one or two parents have a history of cancer, their child is at no greater risk of getting cancer than anyone else. The exception is if cancer runs in the family through a faulty gene. For more information, see *When cancer genes are present* on page 57.

However, some fertility techniques may be associated with a slightly higher risk of birth defects that aren't linked to cancer. One example is intracytoplasmic sperm injection. Your fertility specialist or genetic counsellor is the most qualified person to give you up-to-date information about the risks of particular treatments.

Q: If I didn't preserve my fertility before treatment, do I still have options?

A: Yes, however your fertility options will depend on your sex, cancer type, treatment type, age and how much time has passed since treatment ended.

A general overview of fertility options can be found in the *Women's options after cancer treatment* and *Men's options after cancer treatment* chapters.

●● My oncologist wanted to start treatment as soon as possible, so it was a case of my obstetrician and oncologist deciding on a day to deliver my son, then start my cancer treatment. He was delivered safely at 32 weeks. ●● Lily

Q: What if I was already pregnant at diagnosis?

A: Being diagnosed with cancer during pregnancy is rare – about one in 1000 women are affected.

It may still be possible to have cancer treatment during pregnancy. The potential risks and benefits need to be discussed before treatment begins. Sometimes treatment can be delayed until after the birth. If necessary, chemotherapy can be safely used after the first trimester (12+ weeks).

Some women diagnosed with cancer in early stages of pregnancy decide to terminate it so they can immediately start chemotherapy. For women wishing to breastfeed, learning that this is not possible during chemotherapy may be distressing.

Q: What are my options if I don't want to use fertility treatments?

A: Giving birth or getting your female partner pregnant aren't the only ways to become a parent – see the *Other paths to parenthood* chapter. Alternatively, some people decide not to have children – see page 65.



Talking about fertility

Your doctor should discuss any risk to your fertility before you start cancer treatment.

If you are concerned about fertility, you may need to raise the topic – see the next page for some suggestions on how to initiate this conversation.

You may be reluctant to bring up fertility because you feel overwhelmed with the amount of cancer information. Some people wait to see if the topic is raised at a consultation.

Even if you aren't sure what you want, it's important that your doctor knows fertility is a priority for you. Your specialists can work to keep your fertility options open for the future.

Feeling respected

Anyone with cancer should be able to have a direct, honest conversation with their doctor about fertility and explore their options.

The effect of cancer treatments on fertility is the same regardless of whether you are gay, lesbian, bisexual, transgendered, questioning or heterosexual. You don't need

to have a partner to have these kinds of discussions.

It is important that you (and your partner, if you have one) feel respected, validated and included in all health professional communication. Building a trusting relationship with your cancer team will enable you to ask questions and seek support.

Ways to raise the topic

You have the right to bring up fertility anytime. Here are some suggestions:

- Before we start treatment, I want to talk about my fertility options.
- How will this treatment affect my chances of having a child in the future?
- Will any of these chemotherapy drugs reduce my fertility?
- With whom do you recommend I discuss my future fertility options?
- Can you recommend a fertility specialist or provide me with a referral to a specialist?
- Should I think about storing sperm/eggs/embryos?

Not feeling ready

Cancer may force you to think about your fertility much earlier than you wanted to. You might not want to deal with whether you might want to have children in the future.

As difficult as this might be, it is important to give yourself as many choices as possible for the future. Reading the section about informed decision making may be helpful – see pages 74–75.

If you are thinking, ‘but I don’t want kids anyway’, remember that you might change your mind down the track. Your fertility specialist or counsellor will probably discourage you from ruling out fertility options or restricting yourself.

Seeing a fertility specialist

Fertility specialists are doctors who have additional training and experience in managing fertility. They are sometimes called reproductive endocrinologists.

During an appointment, the specialist will talk through what you want and the options available to you. Your treating cancer doctor will give input, and together you can decide what is right for you and works with your cancer treatment plan.

If you have a partner, you may choose to attend appointments together and include them in your decision-making process. Alternatively, you may wish to bring a family member or friend for support.

Some people find this process stressful. It's a good idea to plan some questions in advance and take notes of what is discussed so you can review it later. The information about dealing with emotional issues and the impact on your relationships may also be helpful – see pages 66–73.

“ The first time I met my surgeon she said, ‘You should go and see a fertility specialist.’ I was very lucky, in the sense that I was able to access that information and treatment. It all happened very quickly. The only way to describe the process is that it was incredibly overwhelming. However, it's better not to delay it. ” *Mackenzie*



Women's fertility and cancer treatment

This chapter provides an overview of how cancer treatments can affect women's fertility.

Avoiding pregnancy during treatment

Some cancer treatments, such as chemotherapy or radiotherapy, can harm an unborn baby or cause birth defects. Talk to your doctor or nurse about whether you need to take specific precautions (such as practising abstinence or using contraception) to avoid falling pregnant during treatment. Sometimes women become pregnant because they thought they were infertile and didn't take precautions.

Your cancer and fertility specialists may also recommend you wait a certain amount of time before starting fertility treatment or trying to fall pregnant naturally. See page 36.

Chemotherapy

Chemotherapy is the use of drugs to kill or slow the growth of cancer cells. The drugs are sometimes called cytotoxics.

Although it can be an effective cancer treatment, chemotherapy often causes side effects to healthy cells in the body and can damage the eggs stored in the ovaries. The extent of the damage is determined by:

- the type of drug/s you receive
- the dosage and duration
- the combination of medications you receive
- your age and previous fertility status.



It is thought that standard chemotherapy for breast cancer ages the ovaries by 10 years.

Sometimes your menstrual cycle stops or becomes irregular during chemotherapy. You may resume having periods after finishing treatment, but there is still a risk you will experience early menopause. This is when the ovaries no longer contain the eggs and hormones necessary for reproduction. For more information, see *Ovarian failure and menopause* on page 27.

Chemotherapy can also affect your heart and lungs. If you have long-term muscle damage as a result of treatment, it may complicate future pregnancy and delivery. Your specialist will talk to you about special considerations necessary during pregnancy.



For more information about cancer treatments, including chemotherapy, radiotherapy and surgery, call **13 11 20** for free booklets or visit your local Cancer Council website.

Radiotherapy

Radiotherapy is the use of high-energy radiation to kill or damage cancer cells. It can be given externally, through a machine directing invisible rays toward the body, or internally, through tiny radioactive implants in the body (brachytherapy).

Whether or not radiotherapy affects fertility depends on its location (proximity to the ovaries or brain) and dose (measured in grays).

High doses of radiation to the ovaries usually destroy the remaining eggs inside and result in premature ovarian failure or early menopause.

- Radiotherapy to the abdomen or pelvis for gynaecological or bowel cancers can damage the ovaries.
- Brachytherapy given internally through the vagina also delivers high doses of radiation to the ovaries.
- Treatment affecting the uterus can cause future miscarriages, premature births and low-birth-weight infants.
- If radiation is given to the brain, it may affect the pituitary gland and interfere with the hormone signals to produce eggs.

Surgery

Surgery to certain parts of the reproductive system can cause infertility. The effect of the operation depends on the type of cancer you have.

- Some abdominal surgery may cause scarring in the fallopian tubes. This may block the eggs travelling to meet the sperm, resulting in infertility.
- Removal of the uterus during a hysterectomy results in a woman being unable to carry a child.
- If the ovaries are surgically removed (oophorectomy), a woman cannot get pregnant using her own eggs.
- Some female reproductive organs may be removed during surgery to treat other abdominal cancers, such as bladder cancer, which can spread in the abdomen.



Sometimes it's possible to save the reproductive organs (known as fertility-sparing surgery). For example, traditional management of early ovarian cancer involves surgery to remove the uterus, fallopian tubes and ovaries, but it may be possible to do more conservative surgery to preserve the uterus and functioning ovarian tissue.

See page 34 for some examples of fertility-sparing surgery.

Hormone treatment

Some types of cancer 'feed' off hormones (e.g. oestrogen-receptive breast cancer). In this case, you may be given hormone treatment to block natural hormone production. These are the same hormones required for fertility, so treatment can affect your ability to have a baby. However, it may be possible to store eggs or embryos before hormone treatment – see page 30 for more information about this process.

One of the commonly used drugs to treat breast cancer is tamoxifen, an anti-oestrogen drug that is usually recommended for a minimum of five years to reduce the risk of recurrence. Pregnancy should be avoided while taking hormone therapies like tamoxifen, as there is a risk it could harm an unborn child.

If you are on hormone treatment and want to become pregnant, talk to your cancer or fertility specialist about the pros and cons of stopping hormone therapy.





Monica's story

I was diagnosed at age 29 with oestrogen-receptive breast cancer. My partner and I had been dating for a year and a half. However, our relationship was strong and I wanted kids in the next 1–2 years. My older sister is having problems conceiving, so I didn't want to wait and discover that I had the same problems.

From day one, the health professionals discussed fertility with us. However when I mentioned to the medical oncologist that I was going to see a fertility specialist, her response was, "A lot of people are concerned about their fertility, but we need to save your life." I found her cold, but I didn't want to regret not exploring my options.

The fertility specialist decided to harvest eggs through the IVF process. We were able to use a drug that didn't introduce more oestrogen to my body. The timing of the egg harvest also

worked well with my cycle, so it was a two-week delay before I could start chemotherapy. When we knew the timing, the medical oncologist was positive about it.

They can't say how successful the IVF process is going to be – unfortunately, for me, they could only harvest one mature egg.

At this point, my partner and I had to decide: do we freeze my egg or a combination of the two of us in an embryo? We needed to consider what would happen if we don't stay together for the long term. You know, it takes a lot of courage to acknowledge these difficult questions.

We decided to freeze an embryo, because the success rates of having a live birth from embryo were slightly better than a frozen egg. We feel now that we will be together for a very long time, so hopefully the embryo will give us the best chance possible when we do want to have a baby.



Other treatments

Some other common cancer treatments include bone marrow or stem cell transplants, immune therapies, vaccines and biological response modifiers.

Stem cell transplants often require high doses of chemotherapy and possibly radiotherapy. This is given before transplantation to destroy cancer cells in the body and weaken the immune system so that it will not attack a donor's cells during the transplant. This may affect your fertility.

The effects of some newer treatments on fertility and pregnancy are not yet known. It is important to discuss your fertility options with your cancer or fertility specialist.

Ovarian failure and menopause

Premature ovarian failure

After cancer treatment, you may go through premature ovarian failure. This is when the hormones required for the ovaries to function properly decrease and stop producing mature eggs.

This can happen during treatment and for some time afterwards. This is known as temporary ovarian failure. You will experience occasional or no periods, and symptoms similar to menopause (see the next page).

If you have temporary ovarian failure, you are at risk of permanent ovarian failure or early menopause. It can be difficult

to predict whether it will be temporary or permanent. However, if you have been in ovarian failure for a number of years, the chances of your ovaries functioning normally again decreases.

Early menopause

Early menopause (premature permanent ovarian failure) is when you stop having menstrual periods because you have no eggs left. The eggs may have been destroyed or damaged by treatment.

Experiencing menopause means you don't ovulate and can no longer bear children.

Symptoms of early menopause may include:

- a dry vagina
- pain during intercourse
- a loss/reduction of interest in sex (low libido)
- hot flushes and night sweats
- sleep disturbance
- mood changes.

Some women have mild symptoms, but others are more severely affected because the menopause didn't occur gradually.

“ It feels like menopause is discussed as a treatment side effect, not as this massive impact on who you are as a person. It makes me feel like I've been fast-tracked into my mother ... I'm facing menopause 20 years earlier than my friends. ” Denise



If your menopausal symptoms are severe, your doctor may prescribe hormone replacement therapy (HRT). This replaces the hormones usually produced by the ovaries, and can be taken in the form of tablets, creams or skin patches. However, some women are advised not to take HRT – it may be risky depending on the type of cancer you had.

There are also effective non-hormonal treatments available. Discuss your situation with your doctor.

Your feelings about menopause

Many women feel emotional when going through early menopause as a result of cancer treatment.

Menopause may make you feel a sense of loss, sadness or isolation. You may feel that your family and friends aren't interested in hearing what you are going through. People may be relieved that you've finished cancer treatment, but unaware of how challenging it is for you to cope with the symptoms and side effects of early menopause.

You may find it difficult to start new intimate relationships after going through menopause. *The Relationships and sexuality* chapter may provide some helpful information about support – see page 71.

Menopause isn't always a traumatic experience, though. Going through menopause might give you a sense of release from monthly menstruation and fertility issues. This may lead to a newfound sense of freedom, confidence or control.



Women's options before cancer treatment

This chapter has information about ways a woman can preserve her fertility before starting cancer treatment. It's ideal to discuss your options with your cancer or fertility specialist at this time. See the *Talking about fertility* chapter for information.

Some women review their options before treatment and decide to leave their future fertility to chance. Others may try one or more methods to preserve their fertility, especially if one of the methods is more experimental or has lower success rates. Be sure to understand the risks of each fertility option and keep in mind that no method works 100% of the time.

If you didn't have an opportunity to discuss your options before cancer treatment, you can still consider it later, but there may not be as many choices available. See the information from pages 36–38.

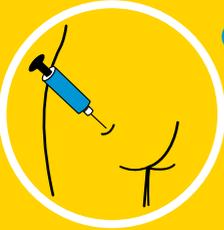
Embryo development and freezing (cryopreservation)

The process of collecting, developing and freezing eggs or embryos for future use is a standard approach to fertility preservation. The steps described opposite are generally part of the in vitro fertilisation (IVF) process. This is the most common and successful method of preserving a woman's fertility.

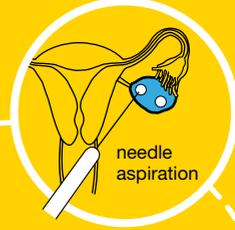
The IVF process described here starts about 10–14 days after your period. Your specialists will plan to delay cancer treatment or stop it during this time.



In vitro fertilisation and cancer treatment



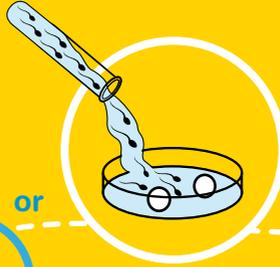
- 1** Hormone injections will help prepare your body.



needle aspiration

- 2** Mature egg/s are collected using an ultrasound probe. A needle is passed through the vagina into the follicle.

- 3** The eggs are combined with sperm from a partner or donor, or frozen for later use.

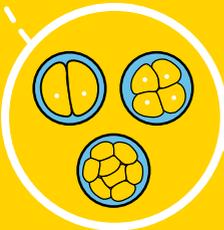


or



CRYOPRESERVATION

- 4** Fertilised eggs may divide and form embryos, which are collections of cells. They may be frozen for later use.



or



CRYOPRESERVATION

- 5** A syringe is used to implant embryos into your body (or a surrogate). This will usually be after cancer treatment.



This is a simplified overview, and is not to scale.

Some women with advanced or hormone-sensitive cancer risk their cancer growing during hormone stimulation. In this case, tamoxifen (an anti-oestrogen drug) may be used to prevent cancer growth.

It could also be possible to skip hormone stimulation and collect a few eggs during the woman's natural ovulation cycle. More research is being done, so talk to a fertility specialist.

Successful pregnancies

At this stage, it's not possible to give precise figures on the likelihood of pregnancy. However, it's generally expected that:

- a hormone-stimulated cycle would result in the collection of 10–12 mature eggs
- for every 10 eggs frozen, about 3–4 embryos will be created
- an embryo has a 25–35% chance of developing into a pregnancy.

Over a thousand babies have been born from mature eggs that have been frozen, and millions of babies have been born from frozen embryos.

Storage options

Cryopreserved eggs and embryos may be stored for many years, however some facilities have storage options with a maximum/limited timeframe. If you have frozen embryos, eggs or ovarian

tissue, it's important to ask how long they can be stored, ensure any annual fees are paid and update your contact details. Once you are ready to have a child, the frozen sample is sent to your fertility specialist.



Ovarian tissue freezing (cryopreservation)

This relatively new process involves taking a piece of your ovary, slicing it and cryopreserving it for future use. It is hoped that when thawed, mature eggs will still develop in the tissue.

- Removing part of the ovary is a minor surgical procedure – a small cut is made near the belly button to view into the pelvic area (laparoscopy). It can also be done at the time of pelvic or abdominal surgery, if this is part of your cancer treatment.
- Specialists in the laboratory will fertilise any eggs produced from the ovarian tissue, then the tissue is transplanted (grafted) back into your body.
- When it's inside the body, the grafted tissue may grow a new blood supply and produce hormones, but usually some of the tissue dies.
- Grafts may last a relatively short time (several months to several years), so the graft usually occurs when you are ready to try for a pregnancy.

To date, fewer than 40 births worldwide have been published after this type of ovarian tissue grafting, where the babies have been conceived both spontaneously and using IVF.

“ I wanted to do everything that I could and progress as far as I could, even if it wasn't successful ... At least I'd know that I'd tried everything to make it possible to have a future child. If it didn't work, I was willing to accept that. ” *Adelena*

Fertility-sparing surgery

In some situations, it is possible to have surgery to preserve your reproductive organs.

Ovarian transposition (oophoropexy) – The movement of one or both of the ovaries to another area in the body, so that they are out of the field of pelvic radiation. The ovaries are generally moved higher in the abdomen – sometimes as high as the lowest ribs. Ovarian transposition is considered successful if you start menstruating again. This occurs about 50% of the time.

Trachelectomy – The removal of only the cervix, for women with small, localised tumours. A stitch or band is used to close the uterus – there is an opening that allows you to menstruate.

It's usually possible to become pregnant after a trachelectomy. However, mid-trimester miscarriage and premature delivery are more common. Discuss these risks with your doctor.

Using hormones to preserve fertility

Sometimes hormone treatments are given to try to preserve fertility. This is known as ovarian suppression.

GnRH analog treatment – Gonadotropin-releasing hormones (GnRH) are long-acting hormones used to protect the ovaries and eggs during chemotherapy or pelvic radiation. The hormones reduce oestrogen and cause temporary menopause.



Hormones are given by injection 7–10 days before cancer treatment starts or no later than one week after treatment starts. The injections continue on a monthly basis until cancer treatment has finished.

GnRH treatment is still being researched to see if it can successfully prolong fertility, particularly in women younger than 35. Your specialist may recommend GnRH as back-up to other fertility options such as egg or embryo cryopreservation.

Progestational agents – Young women with abnormal, precancerous uterine (endometrial) cells may be offered progestational agents (also called progestogens). These hormones may help a woman maintain her fertility. Some successful pregnancies have occurred after this therapy, both spontaneously and with fertility treatments.

“ I now understand what they mean by ‘information means control’. Seeking accurate, reliable information was a huge coping strategy for me. I just wanted to understand what I was in for. I wanted to know everything. My advice is to ask as many questions as it takes for you to understand your choices. ” *Sonya*



Women's options after cancer treatment

You may have limited fertility options after cancer treatment. Your ability to become pregnant may depend on whether you have been through premature ovarian failure or early menopause (see pages 27–29).

If you harvested and stored eggs or embryos, you may choose to use them after treatment is finished.

Natural conception

Your medical team might advise you to try for a baby naturally after finishing cancer treatment. If your body is producing eggs, it may be possible to fall pregnant.

If you would like to fall pregnant naturally, speak with your cancer specialist first. You may be advised to wait six months to two years before trying to conceive. The length of time depends on the type of cancer and treatment.

Women who have had chemotherapy or pelvic radiotherapy are at risk of sudden menopause, even after periods resume. If this is permanent, it means you will no longer be able to conceive naturally.

“ A little over a year after I finished Herceptin, and a year and a half after chemotherapy, we tried to get pregnant. The very next time that I had a menstrual cycle I fell pregnant and that was my daughter. ” *Michelle*



Donor eggs and embryos

If you have ovarian failure after cancer treatment, using donor eggs or embryos may be the only way for you to try for a pregnancy.

These options are available to women with a healthy uterus who can be pregnant, and there may be an age limit of about 51.

Hormones may be given to prepare your body to receive the donor egg or embryo, and until the pregnancy is viable. For this reason, women who have hormone-sensitive cancer may not be able to carry a donor egg or embryo. Surrogacy may be an option in this case – see page 61.

Donor eggs

Most IVF units can recommend centres that have donor egg programs. These centres are located overseas, have waiting lists and require payment. A donor egg may also be provided by a family member or friend who is willing to donate, or someone you don't know. Regardless of where the egg comes from, the donor goes through a thorough screening process.

When the egg is removed from the donor's body, it is fertilised by sperm and the resulting embryo is inserted into your uterus. See pages 30–32 for more information about this general IVF process, which takes about 6–8 weeks per cycle for donor eggs.

Egg donation may be more expensive than standard IVF, as you may be paying costs related to the donor hormone stimulation process.

Donor embryos

If you use a donated embryo, you can become pregnant without having a genetic relationship to the baby.

Your body will be prepared for pregnancy using hormones, then a thawed embryo will be transferred into your uterus through the IVF process.

Embryo donations usually come from couples who had fertility treatments and have spare frozen embryos that they don't wish to use themselves. Embryos may be donated for ethical reasons (instead of destroying the embryos) or compassionate reasons (to help someone struggling with infertility).

Counselling: donor tissue

There are social, legal and moral considerations when using donor eggs or embryos.

Some issues include what the child will or won't be told in the future, and the relationship between the donor and the child. Different states have different laws on assisted

reproductive technology, and this is an evolving area of law.

It's important to speak with a fertility counsellor, who can help you make an informed decision. If you are particularly concerned about using a donor egg or embryo, you may wish to see a lawyer.

Key points – Women

Cancer treatments that affect fertility

- You will probably be advised to avoid falling pregnant during cancer treatment.
- Treatments may cause premature ovarian failure and/or early menopause. This could be permanent.
- Chemotherapy is drug treatment that can damage the ovaries and age them.
- Radiotherapy, given externally or internally, may damage the reproductive organs and cause infertility or future miscarriage.
- Surgery could remove the reproductive organs or cause scarring that impacts fertility.
- Other treatments, including hormone treatment, can also impact your fertility.

Fertility options before cancer treatment

- You may have hormone stimulation to develop eggs, which are collected, fertilised (if possible) and frozen. This is generally known as the in vitro fertilisation (IVF) process.
- Ovarian tissue freezing is a new technique – tissue is taken out then re-implanted into your body so you can try to conceive.
- Your surgeon may plan an operation to avoid (spare) your reproductive organs.
- Hormone treatments, known as ovarian suppression, could preserve your fertility.

Fertility options after cancer treatment

- You may be at risk of sudden, premature menopause. This may be permanent.
- If you have eggs, you may be able to conceive naturally. You might be advised to wait a certain period before falling pregnant.
- If you can't use your own eggs but wish to become pregnant, you may use donor eggs or embryos. These can also be used with a surrogate.



Men's fertility and cancer treatment

This section provides an overview of how cancer treatments can affect men's fertility. Generally, sperm production is more affected in men who have:

- a high dose of chemotherapy
- both chemotherapy and pelvic/abdominal radiotherapy
- prostate surgery.

Avoiding conception during treatment

Some cancer treatments, such as chemotherapy or radiotherapy, may harm an unborn baby or cause birth defects. Talk to your doctor or nurse about whether you need to take specific precautions (such as practising abstinence or using contraception) to avoid conceiving during treatment.

Sometimes men don't take precautions because they think they aren't making sperm and are infertile. However, any sperm you produce is more likely to be damaged, and this could result in birth defects in children that are conceived.

Chemotherapy

Chemotherapy is the use of drugs to kill or slow the growth of cancer cells. The drugs are sometimes called cytotoxics.

Although it can be an effective cancer treatment, chemotherapy often causes side effects to healthy cells in the body, and can damage the sperm.



The extent of the damage to the sperm is determined by:

- the type of drug/s you receive
- the dosage and duration
- the combination of medications you receive
- your age (if you are over 40, you may be less likely to recover your fertility).

There are also risks that chemotherapy may alter the genetic make-up of the sperm, or cause problems with their ability to move up the fallopian tubes for fertilisation.

During and after chemotherapy, sperm production may reduce or stop. The higher the dose of chemotherapy, the longer it takes for sperm production to get back to normal, and the more likely it is to permanently stop.

If sperm production stops, it may resume, but this often takes 1–4 years. It's unlikely to resume if it doesn't improve after a few years, but for some men, it has taken up to a decade to improve.

Permanent infertility results if the cells in the testicles are damaged to the point that they can no longer produce healthy, mature sperm.

For more information about cancer treatments, including chemotherapy, radiotherapy and surgery, call **13 11 20** for free booklets or visit your local Cancer Council website.



Radiotherapy

Radiotherapy is the use of high-energy radiation to kill or damage cancer cells. It can be given externally, through a machine directing invisible rays toward the body, or internally, through tiny radioactive implants inserted into the body (brachytherapy).

Whether or not radiotherapy affects sperm production depends on its location (proximity to the testicles or brain) and dose (measured in grays). A dose as low as 0.1 gray can negatively affect a man's fertility.

- Radiation to a man's testicles or groin area is most likely to kill or damage cells that make sperm. External radiotherapy is aimed directly at this region to treat some childhood leukaemias and testicular cancers. Men who have another type of cancer in the lower abdomen/pelvis, such as rectal or anal cancer, may also be exposed to enough radiation to harm sperm production.
- Treatment directed to the brain can also affect the pituitary gland, which makes hormones to signal sperm production.
- If you have brachytherapy seed implants, the testicles receive a relatively small dose of radiation. Sperm production may be affected, but most men recover. Some men remain fertile throughout this treatment.

“ I was okay with a lot of things, but the idea of not being able to father children really affected me. That was when it all started to get very serious, in terms of my thinking. ”

Elliott



Surgery

Having surgery to the reproductive organs or to the organs in the surrounding area (such as the bladder), may impact on your ability to father a child.

Testicular surgery

Treatment for testicular cancer often involves removal of a testicle (orchidectomy). Usually, only one testicle is removed. If the remaining testicle is healthy, you may continue to make sperm after surgery, but this will depend on if you have further treatment with chemotherapy or radiotherapy.

If the remaining testicle doesn't produce enough testosterone, you can have hormone replacement therapy (supplements) to stimulate sperm production.

Rarely, both testicles are removed to treat testicular cancer (bilateral orchidectomy). You will still be able to get an erection and ejaculate, but there will be no sperm in the semen and you will be infertile.

Prostate surgery

If you have prostate cancer that hasn't spread, you may have an operation to remove the prostate gland and seminal vesicles (radical prostatectomy).

During a radical prostatectomy, the vas deferens are cut, so there is no way for semen to get from the testicles (where it's produced) to the urethra. You may still have erections and the pleasurable

feelings of orgasm, but no longer ejaculate semen out of the penis. This is called a dry orgasm – see page 51.

Surgery can also damage or remove nearby nerves, which may affect your ability to get an erection. The impact of the operation depends on the quality of your erections before surgery.

Bladder surgery

If you have bladder cancer, all or part of the bladder may be removed (cystectomy). During this time, the prostate and seminal vesicles may also be removed, causing infertility.

Nerve damage and ejaculation

Some types of surgery can damage nerves that are needed to get an erection or ejaculate semen. This can affect men who have an operation to treat prostate, testicular or colon cancer, or men who have lymph nodes removed from the pelvis.

After the operation, semen is still produced, but it isn't ejaculated out of the penis normally. Instead, it may not move, or it could go backwards into the bladder. This is called retrograde ejaculation. See page 51 for information about how to treat this condition.



Problems with getting and maintaining erections is known as erectile dysfunction or impotence. Before treatment, your doctors will discuss if you are likely to have nerve damage that causes these problems. Medication or aids can help to restore erectile function.



Other treatments

Other common cancer treatments may include hormone treatments, bone marrow or stem cell transplants, immune therapies, vaccines and biological response modifiers.

Testosterone and other hormones can be affected. This may cause infertility, or it could have the opposite effect. For example, men with breast cancer who are taking the drug tamoxifen (an anti-oestrogen drug) may experience increased sperm production.

Stem cell transplants often require high doses of chemotherapy and possibly radiotherapy. This is given before transplantation to destroy cancer cells in the body and weaken the immune system so that it will not attack a donor's cells during the transplant. This can permanently affect your sperm production. Talk to your fertility specialist about this before treatment, as there may be some things you can do, such as banking sperm (see page 46).

The effects of some newer treatments on fertility and pregnancy are not yet known. It is important to discuss your fertility options with your cancer or fertility specialist.

“Prior to the diagnosis, my partner and I were working long hours in demanding jobs. Thinking about the cancer and the possibility that we might not have kids led us to both change jobs and take a step back. We talked about our life plans and goals. Not only did this bring us closer, but it made our outlook on life more balanced.”  *Isham*



Men's options before cancer treatment

This chapter has information about ways a man can preserve his fertility before starting cancer treatment. It's ideal to discuss your options with your cancer or fertility specialist at this time. See the *Talking about fertility* chapter for information.

Be sure to understand the risks of each fertility option and keep in mind that no method works 100% of the time.

If you didn't have an opportunity to discuss your options before cancer treatment, you can still consider it later. Your choices after treatment will depend on if you are able to produce sperm. See the information from pages 50–53.

Sperm banking

Sperm banking is one of the easiest and most effective methods of preserving fertility. It also allows you to delay the decision about having children, if you're not yet sure what you want.

- Sperm banking is done in hospital or a sperm bank facility (often known as an andrology unit).
- You'll be taken to a private room where you will need to get an erection and reach orgasm by masturbating or having a partner sexually stimulate you. You will be discouraged from using lubricant, as it may damage sperm and make it difficult to freeze.
- It is important to try to collect all of the semen in the sterile jar you are given. The first portion often contains most of the sperm.
- You may be required to attend the clinic more than once to ensure an adequate amount is collected.



You may wonder about collecting sperm at home. Some men near a sperm banking facility may be able to collect the sample in private and deliver it to the laboratory within the hour. Sperm must be kept at room temperature during this time.

It's generally not recommended to collect sperm during sex because bacteria can mix with the sample and make it unusable. However, in some situations, you can collect the semen using a special silicone condom. Your fertility specialist will talk to you about this option if you are unable produce a sperm sample through masturbation.

The sample will be frozen (cryopreserved). It's possible to store the sample for a long time (see page 15). However, it's important to ask about any time limits, ensure annual fees are paid and check that your contact details are up to date.

Once you are ready to start a family, the frozen sperm is sent to your fertility specialist.

Your feelings about sperm banking

It is not unusual to feel nervous before going to a sperm bank. You may feel embarrassed about announcing to staff why you are there, or worry about being unable to achieve orgasm and ejaculate.

The medical staff are professionals and are used to dealing with these situations. They will do their best to support you, and they will also allow you to bring someone with you, if you want.



Harry's story

When I was 25, I'd been feeling quite ill – I had back pain, night sweats and weight loss. I was diagnosed with advanced Hodgkin lymphoma.

The doctors recommended I bank sperm immediately, because fertility would be an issue post-treatment. Fertility wasn't my main concern. However, my partner – now wife – and I were together at that point, so we knew it could be an issue for us down the track.

My chemotherapy regime was aggressive, but the cancer went into remission. The chemo permanently reduced my testosterone levels. I've taken supplements for years, and I will be on them for quite some time. However, the supplements didn't restore my fertility.

Years later, my wife and I tried artificial insemination using my banked sperm. When that didn't work, we tried IVF. The first

cycle was unsuccessful. We told ourselves if a second IVF cycle didn't work, we were going to give up for a while. Being told we were pregnant was one of the happiest days of our lives.

We now have a beautiful child, and we've decided to stick with what we've got. We don't want to do more IVF – it's financially and emotionally draining. Even though we have no intention of using it, my remaining sperm is still stored. We were advised to keep it until my wife reaches a certain age – I guess in case we change our minds.

At times, I've felt responsible for everything. My wife is a healthy woman and probably capable of conceiving a pregnancy naturally, but she had to go through IVF. Our son asks why he can't have a sibling. But it's something we've accepted. We feel blessed now with one child – the result was worth everything we went through.



Testicular sperm extraction

This procedure (also called surgical sperm retrieval) may be used if you don't ejaculate or the semen ejaculated doesn't contain sperm. Specialists use it to look for hidden sperm inside the testicular tissue.

During the procedure, you will be given an anaesthetic and a fine needle is inserted into the epididymis or testicle to find and extract sperm. This is called epididymal aspiration. Sperm collected is usually frozen for future use during IVF.

Radiation shielding

If the testes are close to where external radiotherapy is directed (but they are not the target of the radiation), they can be protected from the radiation beams. This is done using protective lead coverings called shields.

This technique does not guarantee that radiation will not affect the testes, but it does provide some level of protection.

“All my life I had wanted to be a father. I didn't want cancer to ruin my chances, so I stored my sperm before treatment started. I think of this as a bit of an insurance policy.” Zac



Men's options after cancer treatment

When cancer treatment is finished, you will have your semen analysed to check if it contains sperm, and the quality of the sperm and its movement (motility). See *Assessing your fertility*, page 55.

Sometimes men who temporarily stop producing sperm recover the ability to produce it. However, if it isn't restored over time, you are considered permanently infertile. You may feel a sense of loss – the information in *The emotional impact* chapter may help.

If you aren't sure what you want to do but are still fertile, you may want consider banking some sperm. However, this is generally recommended before cancer treatment starts. Your fertility specialist will advise you about this.

Natural conception

Your medical team might advise you to try for a baby naturally after finishing cancer treatment. Sexual intercourse is more likely to lead to conception if sperm counts and motility are close to normal.

Your ability to conceive this way may also be partly dependent on your partner – for example, an older woman may be less fertile. Your fertility specialist will talk to you about factors to consider.

If you would like to try and conceive naturally, speak with your cancer specialist first. You may be advised to wait six months to two years before fathering a child. The length of time depends on the type of cancer and treatment.



Dry orgasm and retrograde ejaculation

Some men no longer ejaculate semen after treatment for prostate, colon or testicular cancer. This is known as dry orgasm. It may occur because your prostate gland and seminal vesicles were removed in a radical prostatectomy, or because lymph node removal damaged the nerves that control ejaculation.

If you have dry orgasm, you will not be able to conceive a child through sexual intercourse. However, it may be possible to have testicular sperm extraction (see page 49).

If you have mild nerve damage, the prostate and seminal vesicles may still function and produce semen. It's possible that semen can go backwards into the bladder instead of out through the penis during orgasm (retrograde ejaculation).

If retrograde ejaculation is your only problem, you may be given medication to contract the internal valve of the bladder. This forces semen out of the penis, as normal, and it may make it possible for you to conceive naturally.

Using fertility treatments

If you are producing sperm, you may be able to use fertility treatment to conceive a baby. This may be effective even if you are producing a limited amount.

Intrauterine insemination (sperm injection or IUI) – During this procedure, frozen sperm are thawed, washed and put in a sterile solution. Samples must contain at least 2 million active sperm after thawing to be used for IUI.

When your female partner is ovulating, a small tube (catheter) is threaded into her uterus through the cervix to place the sperm near the fallopian tube.

If IUI is successful, fertilisation occurs and the woman has a positive pregnancy test within a few weeks.

Intracytoplasmic sperm injection (ICSI) – IVF procedures are done to extract an egg from a woman (see pages 30–31), then a single sperm is injected directly into the egg. This is a newer technique, so ask the fertility specialist if it is an option.



Testicular sperm extraction, described on page 49, may also be used after cancer treatment if you can't ejaculate or if the semen ejaculated doesn't contain sperm.

Donor sperm

Using donor sperm is the simplest and least expensive way for a man who is infertile after cancer treatment to become a parent.

Sperm donors are men who have voluntarily contributed sperm to a fertility centre. Personal information is collected about donors, including:

- 2–4 generations of family medical history
- details about their educational background, hobbies, skills and occupation
- health information, including ethnicity, drug use and blood type.



Samples are thoroughly screened for genetic diseases or abnormalities, sexually transmitted infections (STIs) and overall quality, then quarantined for a certain period of time.

When you use the sperm, insemination is usually done in the fertility specialist's office. The sample is inserted directly into the woman's uterus (IUI). Before this process, the woman may be given hormones to prepare her body and increase the chances of pregnancy.

Counselling: donor tissue

There are social, legal and moral considerations when using donor sperm.

For example, people conceived with donor sperm may want to know the identify of the donor. However, access to this information depends on where and when the person was conceived. Laws about accessing identifying

information about sperm donors vary from state to state.

A donor's sperm could be used to assist multiple families, which means genetic siblings may be created.

These are complex issues so you will probably be advised to speak with a fertility counsellor or lawyer.

Key points – Men

Fertility and cancer treatment

- You will probably be advised to avoid conceiving during cancer treatment.
- Chemotherapy is drug treatment that can damage sperm. Sperm production may reduce or stop, and it can take years to resume.
- Radiotherapy, given externally or internally, may damage the reproductive organs or pituitary gland, which makes hormones to signal sperm production.
- Surgery to the reproductive organs or surrounding area may affect sperm production, and the ability to get an erection and ejaculate.
- Other treatments, including hormone treatments and bone marrow transplants, can also have an impact.

Fertility options before cancer treatment

- Sperm banking is the easiest and most effective method. A sample is frozen for later use.
- If you have radiotherapy, your doctor can shield the testicles so that the radiation does not harm them.
- Testicular sperm extraction may look for hidden sperm inside the testicular tissue.

Fertility options after cancer treatment

- A semen analysis can give you information about the quality of sperm and its movement. Sperm count may improve over time.
- Some men are able to father a child naturally. You might be advised to wait a certain period before fathering a child.
- You may be able to use fertility treatment to conceive using your own semen. This might include intrauterine insemination (sperm injection or IUI) or intracytoplasmic sperm injection (ICSI).
- Some men use donor sperm to conceive a child.



Assessing your fertility

After cancer treatment, you may want to do some tests to see how your fertility has been impacted. However, some people prefer not to know – it is up to you.

You may decide to wait until you feel physically and emotionally prepared to know the results. A partner, friends, family or your medical team might provide support to you when you receive the results.

Fertility tests for women

Your cancer or fertility specialist can talk to you about your likely fertility status after treatment, but unfortunately there are no tests that can reliably predict whether you can fall pregnant and if the pregnancy will be successful. A number of factors contribute to fertility for women, including age and the number of remaining eggs.

Follicle stimulating hormone (FSH) – A blood test can measure FSH, which may indicate how close to menopause you are. FSH levels need to be measured on specific days as levels change throughout the month.

Transvaginal ultrasound – An ultrasound scanner may be inserted into the vagina to examine the structure of the uterus, fallopian tubes and ovaries.

Antral follicle count (AFC) – Using an transvaginal ultrasound to view the ovaries and follicles. The AFC test is done on day three of the menstrual cycle.

Anti-müllerian hormone (AMH) – This blood test measures AMH, which is a hormone secreted by the follicles. Experts are undecided about the value of AMH measurements, as some recent evidence suggests that AMH is reduced in women with breast cancer prior to treatment. Your fertility specialist will discuss if AMH testing before and after treatment could help you consider your options.

Ovarian volume – A transvaginal ultrasound shows the volume of the ovaries. Usually the combined volume is about 10 mL. Women with small ovarian volume (less than 4 mL) often find it challenging to become pregnant.

Fertility tests for men

After treatment, you may be able to have an erection and ejaculate, but this doesn't necessarily mean you are fertile. A semen analysis test can show if you are producing sperm, and if so, how many there are, how healthy they look, and how active they are.

You will go into a private room and masturbate until you ejaculate into a small container. The semen sample is sent to a laboratory for analysis. The results will help the fertility specialist determine if you are likely to need assistance to conceive.



If you stored sperm in a sperm bank before cancer treatment, your doctor can do an analysis of this sample and use it as a baseline comparison to the post-treatment analysis.

When cancer genes are present

A small number of people have a faulty gene that increases their risk of a certain type of cancer. This affects about one in 10 people with cancer.

If you are concerned about passing cancer on to future children, ask your doctor about doing a test or seeing someone who specialises in genetics and fertility.

Some people who have a faulty gene may decide to undergo pre-implantation genetic diagnosis (PGD). This means that embryos produced during IVF are tested to determine whether the faulty gene is present. Only unaffected embryos are implanted into the woman's uterus, ensuring the faulty gene is not passed onto the child. Discuss this option with your fertility specialist.

“ One of the things that really worries me is not knowing if I could pass this cancer onto my children. Nobody has raised this with us and it is my greatest fear. ” James



Preserving fertility in children and adolescents

Children and teens diagnosed with cancer face many difficult issues. Often their focus is on survival, so it is hard to think beyond the present.

However, the majority of young people survive cancer, and fertility may become important to survivors as they reach puberty (sexual maturity) and adulthood.

There may be some things the medical team can do to preserve a young person's fertility. In many cases, decisions on fertility preservation must be made before treatment begins. Your health care team will give you an overview of your options.

Parents will be required to consent to procedures. If the young person is old enough to understand fertility, they should be involved in the discussion.

Additional resource

CanTeen's resource, *Maybe Later Baby*, is written specifically for young people. It provides reliable information about cancer and fertility. Go to www.canteen.org.au and look in the 'How we can help' section to order or download a book.

“ I was diagnosed at age 13 and never thought about my ability to have children or how cancer treatment would affect this. My doctors didn't really take into consideration the fact that I want to have children in my late 20s. ” Milla

Girls

Most girls go through puberty at 9–15 years old. The table below describes some of the options that may be available. It's important that girls receive counselling about their options with a fertility specialist.

Fertility for girls 	
Before puberty	After puberty
<ul style="list-style-type: none">• Undeveloped, immature eggs may be collected, matured in a laboratory, then frozen. This is experimental and not widely available at this stage.• Ovarian tissue can be removed and frozen (for re-transplantation later). See page 33.	<ul style="list-style-type: none">• Mature eggs can be removed and frozen (see pages 30–32).• Hormone levels can be checked to assess fertility. It's possible for young women to be fertile, but then go through early menopause.
<p>At any time, a girl receiving radiotherapy to the pelvis can shield her abdominal area. The ovaries can also be surgically relocated so they are out of the radiation area (see <i>Ovarian transposition</i>, page 34).</p>	

“ Obviously I was not thinking about having kids or anything at 15. But it made me pretty upset though. The possibility of not being able to have my own child was devastating. ” Zoe

Boys

Most boys go through puberty by the age of 13. At this stage, mature sperm is present in the semen. After cancer treatment, many boys have normal puberty and are able to have children naturally. A doctor will do a semen analysis to confirm if sperm are being produced.

Fertility for boys



Before puberty

- There are no proven fertility preservation methods for boys who have not gone through puberty.
- Some techniques, such as testicular sperm extraction (see page 49), are being tested on young boys, but they are experimental and not widely available at this stage.

After puberty

- Sperm banking and cryopreservation can be used to store mature sperm for future use. See pages 46–47.
- Sperm may be surgically removed through testicular sperm extraction.

At any time, the testicles can be shielded for a boy receiving radiotherapy to the pelvis.

“As soon as they said ‘sterile’ it hit me pretty hard. They said, ‘We’ll speak about it when it comes up for you later in life’. It probably put me in a little bit of a depression spiral, to be honest.” Jason



Other paths to parenthood

Giving birth yourself or having your female partner become pregnant aren't the only ways to become a parent. There are other possible avenues to parenthood.

Some people decide that the options described in this chapter aren't for them. You may continue to try for a pregnancy. You might have strong feelings about bearing your own offspring.

Other people may come to the decision not to pursue the goal of having children. See *Being child-free* on page 65.

Surrogacy

Surrogacy is an option for women if they are unable or do not wish to carry a pregnancy. In Australia, a surrogate is a healthy female who receives embryos created from egg and sperm of the intended parents.

You will need to consider:

- if it is legal to pay the surrogate for her services (at the time of publication, it is illegal to pay a surrogate in Australia, but paid surrogacy is permitted overseas)
- who can be the surrogate
- if the surrogate gives birth to your child, what the child will be told in the future.

Surrogacy is a complex process for everyone involved. The fertility clinic organising it must check that several conditions are fulfilled.

There may be counselling and psychiatric testing involved before you enter into a surrogacy arrangement. An ethics committee may also have to approve your case. This ensures that both parties are making a well-informed decision.

If surrogacy is an option, you will pay the medical costs incurred for the IVF process and any additional expenses.



This is general information about surrogacy. Laws vary from state to state and may change. You need to check with your local fertility clinic, and you may wish to consult a lawyer before entering into a surrogacy agreement.

Adoption and fostering

Adoption and fostering are also options for people who want to become parents:

Adoption – Taking legal parental status of a child that is not biologically yours.

Fostering (foster care) – Taking responsibility for a child without having legal parental status.

Types of fostering include respite, emergency, short-term and long-term care. In Australia, there are more opportunities to foster than to adopt.



Sylvia's story

I was diagnosed with kidney cancer as a baby, about 50 years ago. At that time, the treatment was radiotherapy using a chemical called radium. They didn't make a shield for my ovaries since I was so young, and my ovaries were damaged. Now, later in life, when I talk about it, I always think: 'that was pretty damn careless of them'. But it was new technology in Australia, and I was lucky to survive.

I grew up wanting children someday, but I was always aware that I might have fertility problems. I wondered about this when I was a teenager, waiting for periods to happen ... all my friends were having them and I wasn't. I used to pretend I got them, and it made me feel a bit fraudulent, like a play actor.

When I married years later, my husband and I tried to fall pregnant. I was placed on fertility drugs, but I didn't have any viable pregnancies. It was devastating.

I went through premature menopause, so I just accepted that I wasn't going to fall pregnant. However, I still wanted to be a mother, so we applied for adoption. After a five-year wait, we received my daughter at seven weeks old. She was my baby from the minute I laid eyes on her.

I would've liked more children through IVF or adoption, but it didn't work out. I also divorced and remarried, and I wasn't sure how this would be perceived if I applied for adoption again. I had an adult stepson, but he didn't need mothering like my daughter.

I never felt a desperate need for my child to be biologically mine, though I do feel sad that I could never experience pregnancy and breastfeeding. However, I feel grateful that I am a mother. I love my daughter. Now and then, someone reminds me that she's adopted – it doesn't occur to me otherwise, to be honest.

Most adoption and fostering agencies say they do not rule out adoption or fostering for cancer survivors on the basis of their medical history. However, all applicants must declare their health status. The agency may also speak directly with your doctor and require you to have a medical examination. The intention is to determine the risk of your cancer returning and your capacity to raise a child.

Applicants also must be willing to fulfil other criteria. The agency from your state or territory may send a representative to assess your home, and you'll have a criminal record (background) check.

The process depends on where you live and if the child is from Australia or overseas.

tip

A letter from your oncologist stating you are a cancer survivor with a good prognosis may support an application to adopt or foster a child. It is best to check with the agency.

Challenges and rewards

No matter how you become a parent, it can be challenging at times. However, foster or adoptive parenting may present unique challenges. Some children waiting for placement come from multicultural backgrounds. A child could have behavioural issues.

However, adoption and fostering can also have unique, fulfilling rewards. You will receive counselling and support as you decide.



Being child-free

Not having a child may cause a range of emotions, including:

- sadness or emptiness
- a sense of grief or loss
- relief, contentment or happiness
- empowered, if you made the choice.

You may arrive at this decision after your cancer experience or unsuccessful fertility treatments. You might feel like you ran out of time, money or energy to pursue the goal of having children. However, other people may feel that the timing was not right. Some people don't want children, and find other ways to have a happy and fulfilling life.

Your feelings may change over time, and may depend on if you have a partner and how they feel. If you want support, a counsellor, social worker or psychologist can talk to you about being child-free and help you deal with challenging situations (for example, if your partner feels differently to you).

Some people who don't have children of their own like to be involved with young people in other ways. This may be by volunteering with an organisation that works with children or embracing the role of special friend, aunt or uncle.

“ In some ways, the idea of not being able to have children made me think of other ways I could make my mark on the world. It's hard to explain, but I definitely feel much more proactive, and a little less selfish. ” *Katie*



The emotional impact

Infertility can be very hard to come to terms with, particularly after an experience of cancer. You may experience a range of emotions, including:

- anger
- fear
- anxiety or uncertainty about the future
- hope
- feeling overloaded or overwhelmed
- frustration
- annoyance
- a sense of peace with life's new direction
- grief and loss.

Experiencing cancer and infertility can make you feel very alone. You may worry about burdening a partner, friends and family with your concerns.

You might have strong feelings just when you think you should be 'getting on with your life'. Many cancer survivors say they didn't get a chance to think about their fertility until treatment was over, then their emotions hit hard.

For information about the impact on partner relationships and sexuality, see pages 71–73.

“ I'm still very concerned about my fertility. But I feel like now I actually have more control because I know I'm doing something about it. I'm not just waiting around. ” *Stephen*

Taking control

For many people, the most upsetting aspect of cancer and infertility is how it changes their plans and dreams. If the future is unknown, you may feel like your life is on hold or out of control. Finding support may help you feel you are taking a positive step forward and taking control of your situation. Helpful ways to deal with feelings of uncertainty or chaos include:

- knowing the options available to you now and in the future
- keeping a journal of what seems most important to you
- going through a series of steps to inform and record your decision making
- involving your partner (if you have one) in decision making
- seeking peer and/or professional support
- finding constructive ways to manage your own feelings (e.g. through activities such as art or exercise).

Support from loved ones

You may feel there is no one close enough to you who can really understand what you are going through. Partners, friends and family may not know how to communicate with you in the way that makes you feel supported. Some people may withdraw because they feel helpless and do not know what to do or say.

If friends or family can't offer the support you need, or you feel you are burdening them, it may be a good idea to seek peer support or professional help (see pages 68–69).



Dismissive comments people may say

- Be positive.
- You are lucky to be alive.
- Aren't you lucky you don't have kids to worry about?
- You can mind our kids.
- Be grateful for what you already have.
- Don't think about it.

These types of comments may make you feel like no one cares about your feelings or understands what you are going through. However, people usually have good intentions, and they are probably struggling to know how to respond.

Telling loved ones what you need most and asking for support can be an effective communication strategy. It might help to remind people that you aren't asking for advice or solutions, you simply want someone to listen to you express your feelings.

You will probably find that even if certain people can't deal with your concerns, there will be others you can lean on. Some people say that their loved ones rose to the occasion in ways they never imagined.

Peer support

Talking to people who have been in a similar situation to you may make you feel less isolated and provide you with practical strategies to help you move forward.

You can access peer support by:

- joining a cancer- or fertility-related support group
- calling Cancer Council Helpline 13 11 20
- asking your health care team if you can be put in touch with a patient in a similar situation.

Professional support

Some people find it useful to talk to someone who is not their partner, family member or friend. You can get professional counselling alone or go with a partner.

You may choose to speak to a psychologist, social worker, nurse, fertility counsellor or your doctor. This person can talk to you about issues such as:

- making difficult decisions
- the impact of cancer and infertility on your relationships
- expressing your feelings to your loved ones
- anxiety and stress
- moral or ethical concerns
- coping with successful or unsuccessful fertility treatments
- your emotions about other people's pregnancies, births and babies
- ways you can manage your own feelings.

“ I am glad my doctor helped me work through the emotions of what was my top priority. I finally felt that overcoming cancer and getting on with my life were most important and everything else came after that. ” *Thuy*

When you don't want to talk about it

There may be times when you may not want to talk about fertility after cancer. This may be because you think you don't have the words to describe how you feel, you are afraid of breaking down, or you find it too overwhelming or confronting.

Withdrawing from others might give you time out to make sense of what's going on. If you are a private person, this might be the best way for you to process your feelings. Exploring your feelings by writing in a journal or expressing yourself creatively can particularly helpful if you find it difficult to talk to others.

You may want to avoid being a burden to others or fear appearing as if you are not coping. Or, you may be specifically avoiding friends or family who are pregnant or have children, because it brings up painful emotions.

Over time and with the right support, you may come to terms with what you are going through and be able to open up to others. The pain of seeing your friends or family with children will lessen.

“ I used to cry my eyes out every time I saw a friend with a new baby or I heard someone in my family was pregnant. Now I genuinely feel joy and happiness for them as I celebrate their news. ”  Grace



Relationships and sexuality

Cancer and infertility issues can strengthen a relationship with a partner or strain it.

Whether or not you have a partner, it may be a good idea to find out your fertility status as soon as possible (see pages 55–57).

This way, you can reflect on what you want, and/or start a conversation with a partner about what the future may hold.

The effect on partners

Cancer, infertility and changes to your sexuality can put pressure on your relationship with a partner.

Your partner will also experience a range of emotions, including helplessness, frustration, fear, anger and sadness. How your relationship is affected may depend on how long you have been together, the strength of your relationship before cancer and/or infertility, and how well you communicate.

Everyone copes with infertility in their own way. Some partners are very supportive, while others don't want to face what is happening and refuse to talk about it.

Fertility issues often become a source of unspoken tension between partners. If your partner is reluctant to participate in decisions about fertility, you might feel like you're doing it alone or making all the decisions. It can also be challenging if you and your partner disagree about what to do, and focus on different outcomes. A fertility counsellor can help you cope with these issues.

tip

Before starting a complex or emotional discussion, assess if it is a good time. If you begin to feel there is never a good time, a counsellor, psychologist or social worker can help you start these discussions.

Sexuality and intimacy

Experiencing a diagnosis of cancer, managing the side effects of treatment, and living with uncertainty or infertility may affect your body image and interest in intimacy and sex (low libido). Some people say they have a negative body image as a result of treatment or because their body has 'let them down'. You may feel that sex has become laden with the stress of fertility.

Some cancer treatments may cause specific physical problems, such as pain on penetrative intercourse. Experiencing these problems may be a devastating blow to you and your partner, if you have one.

It will take time to accept any physical and emotional changes. It may be helpful to:

- nurture your body with exercise, a healthy diet and sleep
- set aside some time to have a date with a partner
- think about what used to get you sexually stimulated and if it still does
- experiment with things like masturbation, lubrication and sex aides (e.g. vibrators or toys)
- try to focus on enjoyment and pleasure, rather than conception
- clearly communicate your feelings or boundaries to a partner (e.g. "I just want to cuddle now" or "That feels good").

If penetration is not an option, you may try new ways to become sexually aroused. See www.uws.edu.au/cancerandsexuality for more information. Cancer Council's *Sexuality, Intimacy and Cancer* booklet may also be helpful – call 13 11 20 for a free copy.

You may find that despite difficulties, your experiences help you to explore sex and intimacy in different ways.

Starting a new relationship

It can be scary to start a new relationship after being diagnosed with cancer.

Talking to a potential partner or new partner about your fears or fertility issues may be a difficult conversation. You might worry that they won't be interested in you because you've had cancer, or you can't have children or have chosen not to.

You may also worry about finding the right time to have these conversations. Feeling confident in yourself is a good starting place for a new relationship. Talking through the scenario with a friend, family member or health professional may help you practise what to say and think about how the conversation could go.

👤👤 Finally telling him I can't have kids came as such a relief to me. The funny thing was that he felt relieved too, because he hadn't told me yet, but he never wanted to be a parent. 👤👤 *Satomi*



Making well-informed decisions

Weighing up the risks and potential benefits of your fertility options can be a confusing and complex process. You may feel that everything is happening too fast.

Understanding your fertility options and considering the pros and cons of each option may help you feel like you've made a well-informed decision.

People don't always feel completely sure when making tough decisions. Keeping a journal or blog about your experience may help you come to a decision and review and reflect on your feelings later. You may also want to talk to a fertility counsellor or health professional.

Financial considerations

Fertility treatments can be expensive, and this may be a factor in your decision. Costs vary across states and between organisations. Ask your doctor about any Medicare rebates and talk to your provider if you have private health insurance.

“When fertility came up, it was abrupt: ‘Because of the cancer, we need to talk about this now’. I had to face it, despite the fact that there were a zillion other things going on. It was a frantic and stressful time, but looking back, I'm glad that I allowed myself to get the information I needed and could make an informed decision about it.”  *Becky*

The three main costs for fertility treatment



Initial fertility specialist consultation and pre-treatment tests

You need a referral from your GP or a specialist gynaecologist/obstetrician to be eligible for Medicare rebates. A referral should list both you and your partner, to enable you to claim the maximum benefit.



The procedure (e.g. IVF cycle/day surgery)

This can cost up to \$2000, but the fees will depend on the procedure and if you are a public or private patient.

There may be Medicare rebates for various IVF or ICSI procedures, including blood tests, fertility specialist consultations and medication. Although there is no Medicare rebate for private day surgery procedures, some rebates exist for anaesthetist services.

If procedures occur in a public hospital fertility unit, there will be no fees for either day surgery or anaesthetist services.



Egg, sperm and embryo storage/ cryopreservation

These may be called advanced science costs. Storage costs vary for reproductive tissue.

Ask about upfront payments, instalment payments or annual fees.



Questions for reflection

Thinking about your answers to the questions below may help you come to a decision. Many of these are personal decisions – there are no right or wrong answers.

How will I know when I have enough information and support?

What information and support do I need to determine the right time to plan a pregnancy?

- How is cancer affecting my health right now?
- How have my overall life plans changed as a result of the cancer?
- Does my life plan include having a child?
- If I decide not to have a child, what has led me to this decision?
- Are there positive consequences of not having a child?
- If I have cancer treatment, how quickly do I need to start?
- Will cancer or its treatment affect my fertility?
- If I have a child, is it important to me that it would be biologically related to me?

What fertility options do I have?

How much will this cost (total out-of-pocket fertility expenses)? Which parts are covered by Medicare rebate? What does my health insurance cover?

What does my partner think?

- What are the pros of this fertility option?
- What are the cons of this fertility option?
- Which fertility option appeals more to me and why?
- Which fertility option will I steer clear of and why?
- Do I need further resources or clarification about this in order to feel more comfortable with my decision? If so, how and when will I seek this clarification?
- Can I have a breakdown of the costs involved each step of the way?
- Do I need to pay upfront before treatment begins?



Additional websites and resources

Getting further information may be a valuable part of your decision-making process.

Useful websites

You may use the internet to look up information or seek support. The websites listed below are reliable sources.

Australian

- Adopt in Australia Wikihow www.wikihow.com/Adopt-in-Australia
- Andrology Australia www.andrologyaustralia.org
- Australian Foster Care Association www.fostercare.org.au
- ACON (Same sex attracted people + cancer) www.acon.org.au
- Better Health Channel www.betterhealth.vic.gov.au
- beyondblue www.beyondblue.org
- Breast Cancer Network Australia www.bcna.org.au
- Cancer Australia canceraustralia.gov.au
- Cancer Connections www.cancerconnections.com.au
- Cancer Council Australia www.cancer.org.au
- CanTeen www.canteen.org.au
- Clinical Oncological Society of Australia (COSA)
guidelines (type 'fertility' in the search box) wiki.cancer.org.au
- Family planning clinics in Australia www.shfpa.org.au
- IVF Clinics comprehensive directory www.access.org.au
- Jean Hailes Foundation [www.jeanhailes.org.au/health-a-z/
menopause/premature-early-menopause](http://www.jeanhailes.org.au/health-a-z/menopause/premature-early-menopause)
- National Breast Cancer Foundation www.nbcf.org.au
- Surrogacy Australia www.surrogacyaustralia.org

International

American Cancer Society.....	www.cancer.org
Cancer.Net (some podcasts and videos).....	www.cancer.net
Cancer Research UK.....	www.cancerresearchuk.org
Livestrong Fertility	www.livestrong.org/we-can-help/fertility-services
Macmillan Cancer Support	www.macmillan.org.uk
National Cancer Institute.....	www.cancer.gov

Recommended resources

The organisations listed on these pages may provide valuable information and support about fertility-related issues. Not all websites will be relevant to your situation.

Cancer Council can also provide support and help

you access local counsellors, psychologists and social workers in your area.

Call **13 11 20** for more information or to be put in touch with people who have been through a similar experience.



Glossary

abdomen

The part of the body between the chest and hips, which contains the stomach, spleen, pancreas, liver, gall bladder, bowel, bladder, kidneys and some reproductive organs.

abstinence

Not engaging in sexual activity.

adoption

When a child is placed into the permanent care of a person who isn't their natural parent.

anaesthetic

A drug that stops a person feeling pain during a medical procedure. A local anaesthetic numbs part of the body; a general anaesthetic causes a temporary loss of consciousness.

biopsy

Removal of a small sample of tissue from the body to help diagnosis disease.

bone marrow

The soft, spongy area in the middle of bones where red and white blood cells and platelets are made.

bone marrow transplant

Transfusing healthy bone marrow to replace bone marrow destroyed by high doses of chemotherapy.

cancer

A term for a large group of diseases that have uncontrolled growth and spread of abnormal cells in the body.

cervix

The end of the uterus that forms a canal and extends into the vagina.

chemotherapy

The use of drugs called cytotoxics to kill or slow the growth of cancer cells.

conceive

To create an embryo by fertilising an egg.

contraception

Deliberate measures to prevent pregnancy as a result of sexual intercourse (e.g. condom use, etc).

cryopreservation

A process where cells, tissue or other substances are frozen.

cystectomy

Surgical removal of part of the bladder (partial cystectomy) or all of the bladder and surrounding lymph nodes (radical cystectomy).

donor egg

An egg from another woman that is used to conceive a baby.

donor sperm

Sperm from another man used to conceive a baby.

dry orgasm

When a man still has the pleasurable feelings of orgasm, but no longer ejaculates semen out of the penis.

early menopause

The start of menopause at an age earlier than clinically normal (approximately 40 or younger).

egg

The female cell required for reproduction. An immature egg is known as an oocyte.

egg harvesting

The collection of eggs through the vagina, using ultrasound guidance.

ejaculation

The release of semen from the penis during sexual climax.

embryo

A collection of cells in the earliest stage of development (after the egg is fertilised by sperm).

epididymal aspiration

Inserting a needle into the epididymis under anaesthetic to extract sperm.

epididymis

Small tubes located at the back of each testicle.

erection

An enlarged, rigid penis (sexual excitement).

fallopian tubes

The tubes that lead from the ovaries to the uterus.

fertility

The capability to produce offspring.

fertility preservation

Methods used to help someone retain their ability to conceive and/or carry a baby.

follicle

A cavity in the ovary that contains a maturing egg.

fostering

When adults take responsibility for a child, but do not have legal parental status.

gamete

A cell that fuses with another during

fertilisation (e.g. an egg or sperm).

gonadotropin-releasing hormones (GnRH)

Long-acting hormones used to slow and stop the function of the ovaries.

hormone

A substance made by the body to regulate reproduction, metabolism and growth.

hysterectomy

Surgical removal of the uterus.

insemination

The deliberate injection of semen into a woman's body for the purpose of achieving conception/pregnancy.

intracytoplasmic sperm injection (ICSI)

An in vitro fertilisation procedure in which a single sperm is injected directly into an egg.

intrauterine insemination (IUI)

Depositing sperm directly into the uterus to increase the chances of conceiving.

in vitro fertilisation (IVF)

When an egg is fertilised with sperm in a laboratory then eventually implanted into a woman's body. One of the main treatments for infertility.

laparoscopy

Surgery done through small cuts in the abdomen using a laparoscope for viewing. Also called keyhole surgery.

masturbation

Self-stimulation of your own genitals

and body, for sexual pleasure or orgasm.

menopause

When a woman's menstrual periods permanently stop. This marks the end of her natural reproductive years.

menstruation

Having monthly periods (discharge of the lining of the uterus). This starts after a girl goes through puberty.

oestrogen

The primary female sex hormone.

oncologist

A doctor specialising in the treatment of cancer.

oophorectomy

The removal of one (single) or both (bilateral) of the ovaries.

oophoropexy

The surgical relocation of one or both ovaries to another area of the body to protect ovarian function.

orchidectomy

Removal of the testicle.

orgasm

Sexual climax.

ovary

A female reproductive organ that contains eggs and produces oestrogen and progesterone.

ovulation

A phase of the menstrual cycle that involves the release of an egg from one of the ovaries.

ovum (plural: ova)

A female egg that is released at ovulation.

pituitary gland

A gland in the brain that secretes hormones.

pre-implantation genetic diagnosis (PGD)

Testing embryos for specific genetic or sex-linked disorders before implantation into the woman's uterus.

premature ovarian failure

The loss of ovarian function. This occurs when the ovaries no longer produce adequate amounts of sex hormones, and can't develop a mature egg for ovulation.

progesterone

A hormone involved in the female menstrual cycle.

prostate

A gland in the male reproductive system that produces most of the fluid that makes up semen.

puberty

The process of reaching sexual maturity and becoming capable of reproduction.

radical prostatectomy

Removal of the prostate gland and surrounding tissue.

radiotherapy

Use of high-energy radiation to kill or damage cancer cells.

retrograde ejaculation

When semen goes into the bladder instead of ejaculating out of the body through the penis.

semen

The fluid ejaculated from the penis,

which contains sperm.

seminal vesicles

Glands that lie very close to the prostate and produce secretions that form part of the semen.

sperm

The male cell required for reproduction.

stem cell

Immature cell found in the bone marrow from which blood cells are formed.

surrogacy

When another woman (a surrogate) carries a child and gives birth on behalf of someone else.

tamoxifen

An anti-oestrogen drug used to treat breast cancer.

testicle

The male organ that produces sperm and hormones.

testicular sperm extraction

Surgically removing sperm from testicular tissue.

testosterone

The primary male sex hormone.

trachelectomy

Surgical removal of the cervix.

transvaginal ultrasound

A test that uses soundwaves to create pictures of the uterus, ovaries and other female reproductive organs.

ultrasound

A non-invasive scan that uses soundwaves to create a picture of part of the body.

uterus (womb)

The female organ where a foetus

develops during a woman's pregnancy.

vas deferens

Small tubes running from each testicle to the prostate.

Can't find what you're looking for?

For more cancer-related words, visit www.cancercouncil.com.au/words or www.cancervic.org.au/glossary.



How you can help

At Cancer Council we're dedicated to improving cancer control. As well as funding millions of dollars in cancer research every year, we advocate for the highest quality care for cancer patients and their families. We create cancer-smart communities by educating people about cancer, its prevention and early detection. We offer a range of practical and support services for people and families affected by cancer. All these programs would not be possible without community support, great and small.

Join a Cancer Council event: Join one of our community fundraising events such as Daffodil Day, Australia's Biggest Morning Tea, Relay For Life, Girls Night In and Pink Ribbon Day, or hold your own fundraiser or become a volunteer.

Make a donation: Any gift, large or small, makes a meaningful contribution to our work in supporting people with cancer and their families now and in the future.

Buy Cancer Council sun protection products: Every purchase helps you prevent cancer and contribute financially to our goals.

Help us speak out for a cancer-smart community: We are a leading advocate for cancer prevention and improved patient services. You can help us speak out on important cancer issues and help us improve cancer awareness by living and promoting a cancer-smart lifestyle.

Join a research study: Cancer Council funds and carries out research investigating the causes, management, outcomes and impacts of different cancers. You may be able to join a study.

To find out more about how you, your family and friends can help, please call your local Cancer Council.



Cancer Council Helpline 13 11 20

Cancer Council Helpline is a telephone information service provided throughout Australia for people affected by cancer.

For the cost of a local call (except from mobiles), you, your family, carers or friends can talk confidentially with oncology health professionals about any concerns you may have. Helpline consultants can send you information and put you in touch with services in your area. They can also assist with practical and emotional support.

You can call Cancer Council Helpline 13 11 20 from anywhere in Australia, Monday to Friday. If calling outside business hours, you can leave a message and your call will be returned the next business day.

Visit your state or territory Cancer Council website

Cancer Council ACT
www.actcancer.org

Cancer Council SA
www.cancersa.org.au

Cancer Council Northern Territory
www.cancercouncilnt.com.au

Cancer Council Tasmania
www.cancertas.org.au

Cancer Council NSW
www.cancerCouncil.com.au

Cancer Council Victoria
www.cancervic.org.au

Cancer Council Queensland
www.cancerqld.org.au

Cancer Council Western Australia
www.cancerwa.asn.au

For support and information on cancer and cancer-related issues, call Cancer Council Helpline. This is a confidential service.



Cancer Council
Helpline
13 11 20