Preserving your fertility for the future

Options for young women having treatment for serious medical conditions

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This booklet was produced by Reproductive Services at the Royal Women's Hospital and edited by the Women's Consumer Health Information team.

If you would like to make any comments about this booklet please email the Women's Consumer Health Information team at rwh.publications@thewomens.org.au

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The Royal Women's Hospital and Melbourne IVF

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This brochure is for young women who are about to have chemotherapy, radiotherapy or surgery that may affect their fertility. It aims to help you make decisions now that may increase your chance of having children in the future.

The diagnosis and treatment for cancer or other serious medical conditions such as, severe endometriosis, aplastic anaemia, some metabolic diseases, can be extremely stressful and traumatic. Things can feel very rushed, as your starting to come to terms with your diagnosis.

Having children may be the last thing you want to think about right now. But talking to a health professional now can help you to understand the long-term effects of your treatment and the options that are available to you.

Infertility after cancer treatments

Infertility is a term which describes the situation when a couple are having difficulty getting pregnant (conceiving). Infertility can be caused by a reproductive problem in either partner or both.

Infertility after cancer or medical treatments may arise because:

- the ovaries are damaged by radiotherapy, chemotherapy or other medications, causing loss of some or all of the eggs (oocytes)
- hormonal signalling between the brain and the ovaries has been disrupted
- there is damage to the ovaries, uterus or fallopian tubes from surgery or radiotherapy.

How particular cancer treatments can affect your fertility

Each treatment has its particular risks to your future fertility.

Surgery

If there is surgery to the abdomen or the pelvis, there may be associated damage to the uterus, ovaries or the fallopian tubes. Occasionally, it is necessary to remove the ovaries and/or the uterus which can adversely affect your fertility.

Chemotherapy

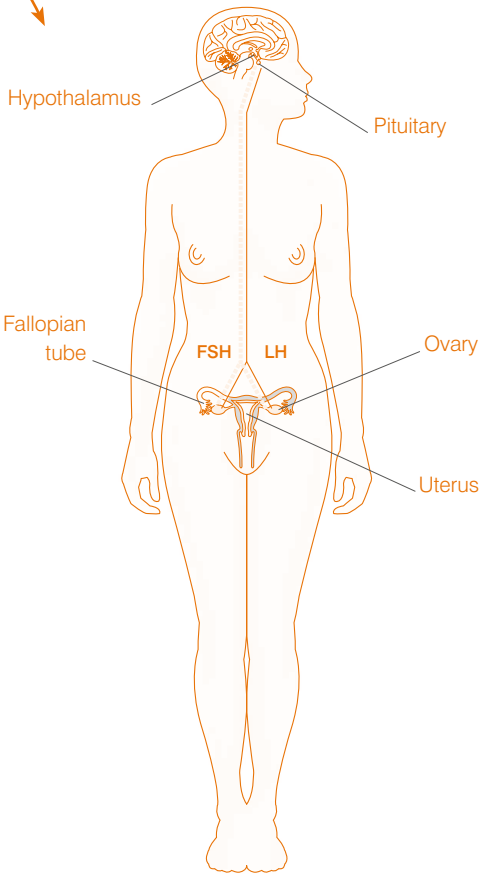
Chemotherapy acts on rapidly dividing cancer cells to destroy them. Some chemotherapy drugs can damage the eggs and follicles in your ovaries, which may be temporary or permanent.

The effect on the ovaries will depend on the following:

- your age and background ovarian reserve (the supply of eggs you have in your ovaries)
- types of drugs used
- dose of drugs
- length of time drugs are used.

The female reproductive cycle involves hormone (FSH or LH) release from the brain which results in development of follicles and eggs in the ovary.

Follicles are fluid-filled sacs in the ovaries in which eggs grow to maturity.



Radiotherapy

Radiotherapy acts on rapidly dividing cells in a particular area of the body.

Radiation can also act on healthy cells. When radiotherapy is directed to the pelvis it may damage the ovaries and the uterus.

Explaining 'ovarian insufficiency'

Chemotherapy and radiotherapy can cause significant damage to the eggs and follicles in your ovaries. The damage means the ovaries do not respond normally due to the depletion of eggs and do not produce adequate levels of oestrogen and progesterone. This loss of ovarian function is referred to as ovarian insufficiency.

Ovarian insufficiency can cause:

- very irregular or absent periods
- hot flushes
- mood swings
- dryness in the vagina
- urinary symptoms
- low oestrogen
- high levels of the follicle stimulating hormone (FSH) and luteinizing hormone (LH)
- possible bone depletion.

It is almost impossible to conceive with your own eggs after the supply of eggs is depleted.

However, ovarian function can change from month to month.

Ovarian insufficiency may be:

Temporary

Which starts around the time of chemotherapy and can last anywhere from a few months to one or two years. Most young women experience temporary ovarian failure.

Permanent

Which means that the ovaries stop working around the time of chemotherapy and do not come back to normal functioning. This occurs mainly in older women and with extremely high dose chemotherapy or radiotherapy to the pelvis. It is still possible, although rare, for spontaneous cycles to start again even many years later.

Delayed early onset

The most common situation, in which there is temporary ovarian failure with return of cycles and recovery of fertility. However, a few years later, the ovaries stop working much earlier than would be expected.

Your options before starting treatment

In this section we discuss techniques to help preserve your fertility. You may choose to not use any of the techniques outlined but the opportunity to talk to someone and to become well informed about your options can be very valuable. It may also be comforting to know that, even if you don't proceed now, there may still be options available later on. This is why it is important to keep in contact with your reproductive medicine team after treatment has finished.

While cancer treatments do pose a risk to your fertility, there are things that you can do which may help to preserve your fertility before your treatment begins.

They include:

- freezing eggs (oocytes), ovarian tissue or embryos for later use
- protecting the ovaries during chemotherapy or radiotherapy.

Your choices will depend on your individual circumstances such as:

- your desire for children in the future
- your current relationship situation
- your tumour type and hormone-sensitivity
- the particular treatment type planned
- the time available before cancer therapy is to start
- your age and whether you have reached puberty.

Freezing eggs, embryos and ovarian tissue

Freezing mature eggs

This is the method of choice for single women or those who are not planning to conceive in the near future. The procedure begins with 10–14 days of hormone stimulation. Mature eggs are then collected from the ovaries under sedation using ultrasound-guided aspiration, through the vagina.

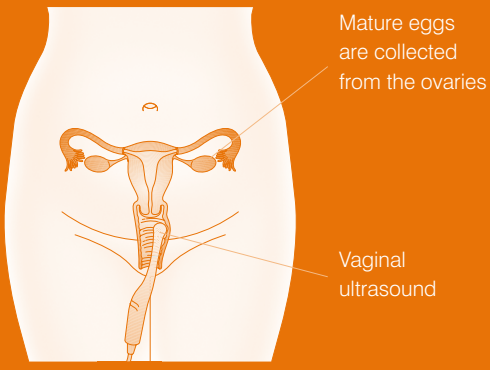
The retrieval process takes about 10 minutes. The mature eggs are then frozen.

We expect 80–90 percent of the eggs to survive the freezing/thawing process for potential fertilisation through IVF and about 50–70 percent of these eggs to be fertilised.

This means that for every 10 eggs frozen, we can expect about three to four good quality, usable embryos to be created.

Ultrasound-guided aspiration

Mature eggs are collected from the ovaries under sedation using ultrasound-guided aspiration, through the vagina.



You may have enough time before starting your chemotherapy/ radiotherapy, to have more than one cycle of hormone stimulation and egg retrieval.

This ensures that you have a reasonable number of eggs to freeze and therefore an increased chance of a future pregnancy.

There is a theoretical concern that the high hormone levels associated with ovarian stimulation could have a stimulating effect on breast cancer cells. Therefore, women with hormone-sensitive tumours such as receptor-positive breast cancer may be given tamoxifen or letrozole. These medications block the effects of oestrogen on the breasts.

While it is impossible to be absolutely sure, studies to date do not show any adverse effect on cancer treatment from ovarian stimulation. This should be discussed with your oncologist.

Freezing embryos

This procedure begins with 10–14 days of hormone stimulation. Mature eggs are then removed from the ovaries under sedation using ultrasound-guided aspiration, through the vagina. The retrieval process takes about 10 minutes. The eggs are then fertilised with sperm outside the body and frozen. We expect about 90 percent of embryos to survive once frozen and thawed.

Depending on your age, there is about 15–50 percent chance of achieving a successful pregnancy for each embryo transferred back into your body.

Freezing ovarian tissue

This process begins with a procedure called a laparoscopy, performed under general anaesthetic. You will need to stay in hospital for the day with this procedure. During the procedure a small piece of ovarian tissue is removed from one ovary and then cut into tiny slices and frozen. If required, a whole ovary will be removed.

Later, when you are ready to conceive, and your medical team have no concerns about pregnancy, the ovarian tissue slices are grafted back into your pelvis. Around four to five months later, the grafted ovarian tissue can start to produce reproductive hormones and develop follicles.

Pregnancy may be achieved either with ovarian stimulation and IVF, or perhaps even naturally.

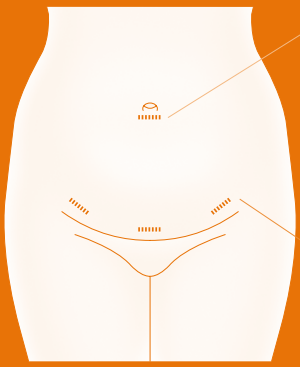
There are now many studies which show that babies are successfully conceived and born using this technology, demonstrating that this is a useful treatment option.

It is also important to be aware that there are risks associated with any operative procedure, including a laparoscopy.

For more information see the fact sheet *Preserving your fertility: Ovarian tissue freezing*.

Laparoscopy

A procedure where small cuts are made to the abdomen through which instruments are inserted, including a laparoscope which is like a tiny telescope used to view your pelvic organs.



Protecting the ovaries during chemotherapy

There are some medications that may protect the ovaries from damage by the chemotherapy drugs used in your cancer treatment. These medications are called GnRH analogues and act to induce a temporary state of ovarian shut down, similar to a temporary menopause.

There have been a number of studies into the effectiveness of GnRH analogues, and although the results are variable there does appear to be a benefit from using this medication. Some small studies suggest it may reduce the chance of ovarian insufficiency by up to 40 percent. For example, if the risk of ovarian failure with chemotherapy was 40 percent, the risk when the extra medication is used is only about 24 percent.

GnRH agonists

These are given as a monthly injection as they are long-acting. In some recent studies, it appears that GnRH agonists protect the ovarian follicles and eggs from the toxic effects of the chemotherapy drugs.

The injections ideally start from about 7–10 days before the first dose of chemotherapy with patients having follow-up injections every 28–30 days. If necessary, the first injection can be given up until the first day of chemotherapy.

Side effects from the injections include hot flushes and mood changes. If used for more than six months, there is a risk of thinning of the bones (osteoporosis). If the chemotherapy treatment lasts longer than a six-month period, then some extra oestrogen replacement may be given to protect against osteoporosis.

Egg and embryo donation

For women who have developed ovarian failure following their chemotherapy/ radiotherapy, donor eggs or embryos may be the only option for having a baby.

Most IVF clinics have an active egg donation program and some have an embryo donation program. Many clinics have long waiting list for people requiring anonymous donor eggs and embryos. Therefore, many women and couples choose to use a known egg donor, or to seek an egg donor with assistance.

Surrogacy

For women with a damaged uterus or who cannot, for medical reasons, carry a pregnancy, surrogacy can give the opportunity to have children. Surrogacy is a process where embryos from a woman and her partner (or embryos created using eggs from an egg donor) are transferred into another woman (the surrogate) who carries the pregnancy for them.

Where to get help and information

Fertility Preservation Service

This is a service provided by the Reproductive Services Unit at the Royal Women's Hospital and Melbourne IVF, in collaboration with cancer specialists from major oncology units. The service is headed by Associate Professor Kate Stern.

Services include consultations and programs for young women and their families, both before chemotherapy begins and after their cancer therapy in the Menopause Symptoms after Cancer Clinic at the Women's.

The service is supported by:

- doctors with experience in fertility preservation options
- doctors with specialised experience in adolescent gynaecology issues
- counsellors with expertise in areas of cancer treatment and fertility
- nurses and administrative staff who facilitate the service
- an internationally acknowledged scientific team who have pioneered several of the techniques now available in both research and clinical settings.

Referral

You will be seen as soon as possible after referral. Referrals can be made by your:

- oncologist
- surgeon
- general practitioner (GP)
- nurse coordinator
- fertility specialist.

You can be seen as a public patient or as a private patient (for the scheduled fee).

If you need to be seen urgently ask your health practitioner to make a fax or telephone referral to:

Fertility Preservation Service
T (03) 8345 3200
F (03) 8345 3260

Appointments

You may need two appointments to give you the best opportunity to gather information, consider your options and decide what to do.

Medical and counselling appointments can be made for the first visit so that you and your family can discuss various issues in a separate, non-medical and supportive environment.

Follow-up appointments

After the initial appointment(s), follow-up appointments will be made to confirm plans for therapy options, or for ongoing counselling.

Appointments are usually made three to six months after completing your cancer treatment and then yearly (or as required).

Costs of treatment

- Consultation appointments for public patients will not be billed at the Royal Women's Hospital and patients are usually charged the scheduled fee if seen as a private patient.
- Egg and embryo freezing will incur some charges above the Medicare rebate.
- Laparoscopic ovarian tissue harvesting for public patients will not incur any surgical fees and for private patients will be determined by the location of the operation.
- There is an annual storage fee for eggs, embryos and tissue.

Please discuss any charges with your doctor.

Any patients with financial difficulties should notify their doctor so that arrangements can be made to minimise out-of-pocket expenses.

Reproductive Services Unit
The Royal Women's Hospital
2nd floor
Cnr Grattan St &
Flemington Rd
Parkville
Victoria 3052
T (03) 8345 3200
F (03) 8345 3260

www.thewomens.org.au/pv-fertility-preservation

Melbourne IVF
344 Victoria Pde
East Melbourne
Victoria 3002
T (03) 9473 4444
F (03) 9473 4454

www.mivf.com.au

Useful resources

Fertility resources for cancer patients, advocacy and information

The Fertility Society of Australia
The society has links to the fertility preservation special interest groups and offers general information addressing many fertility issues.

www.fertilitysociety.com.au

The Royal Children's Hospital (RCH)
The department of Adolescent Gynaecology at the RCH provides specialist advice regarding sexuality and contraception issues as well as counselling for young girls having cancer treatment

www.rch.org.au/rch_gynaecology

Royal Women's Hospital
The Endocrine and Metabolic Clinic at the Women's provides specialist advice for hormonal issues in adolescent girls.

www.thewomens.org.au/pv-hormone-disorders

COSA WIKI

The Clinical Oncological Society of Australia (COSA), Adolescent and Young Adult (AYA) working group have developed guidelines which provide evidence-based recommendations to AYA patients and their families with issues around:

- the potential risk of cancer treatments to fertility
- fertility preservation options for AYAs diagnosed with cancer
- potential late effects and the need for assessment and monitoring of reproductive, sexual and endocrine health after cancer treatment ends.

wiki.cancer.org.au/australia/COSA:AYA_cancer_fertility_preservation

Related fact sheets on the Women's website

- *Preserving your fertility: Ovarian tissue freezing*
- *Radiotherapy: How it affects your uterus and fertility*

www.thewomens.org.au/health-information/fact-sheets

Support for quality of life after cancer

LIVESTRONG Foundation
An American website with many useful resources to help people with their cancer diagnosis.

www.livestrong.org

For a range of online information

Breast Cancer Network Australia
Australia's leading breast cancer consumer organisation with many resources to inform you about your diagnosis, treatment and recovery.

www.bcna.org.au

Cancer Council Victoria
The Cancer Council Helpline is a confidential service where you can talk about your concerns and needs with specially trained staff. The staff can send you information on a wide range of topics related to your cancer and cancer support services.
T 13 11 20 Helpline (Monday to Friday, 9am to 5pm)

www.cancervic.org.au

Jean Hailes
For information on early menopause and premature ovarian failure.

www.jeanhailes.org.au/health-a-z/menopause/premature-early-menopause

Centre for Adolescent Health
The Royal Children's Hospital
For issues relating to adolescent health.
T (03) 9345 5890

www.rch.org.au/cah

Reproductive Services

The Royal Women's Hospital
2nd floor
Cnr Grattan St & Flemington Rd
Parkville, Victoria 3052
T (03) 8345 3200 **F** (03) 8345 3260
www.thewomens.org.au

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