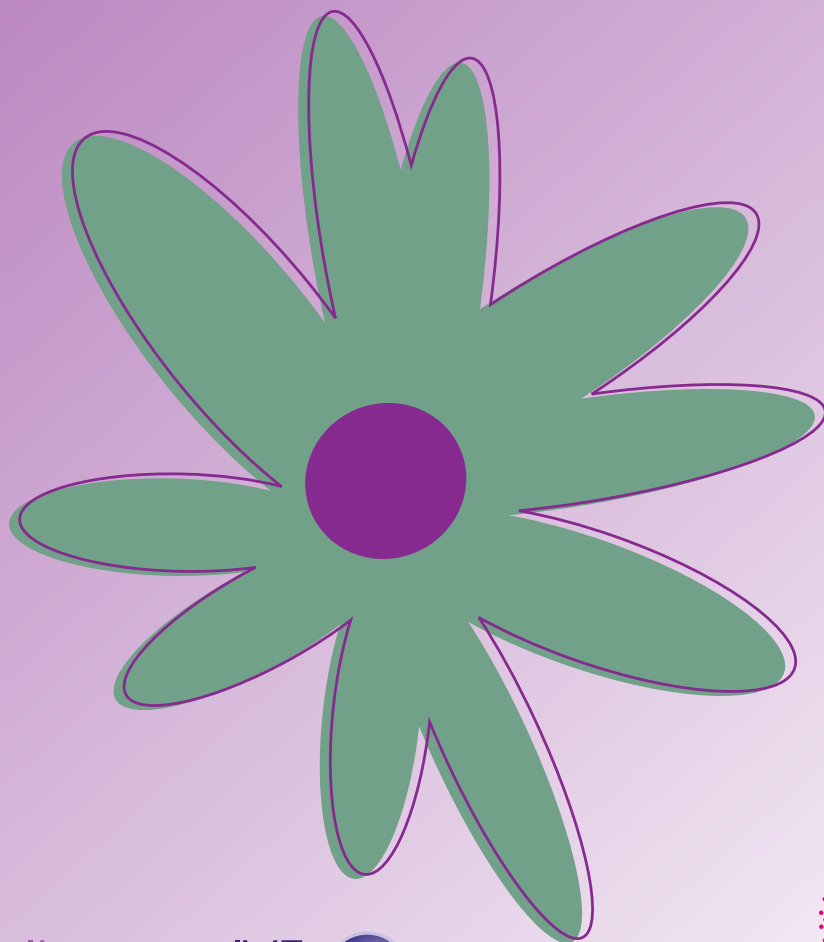


CAN I STILL HAVE CHILDREN?

Fertility options for young women
having chemotherapy and radiotherapy



MelbourneIVF
Leading minds dedicated to your success



the women's
the royal women's hospital

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 contact the Women's Consumer Health Information team on (03) 8345 3040 or email rwh.publications@thewomens.org.au

The original booklet, *Chemotherapy, radiotherapy and having children: information for women*, was produced in conjunction with the Cancer Council Victoria in February 1996

The Royal Women's Hospital and Melbourne IVF

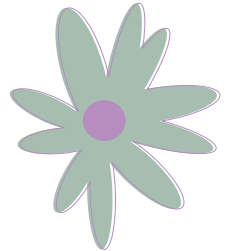
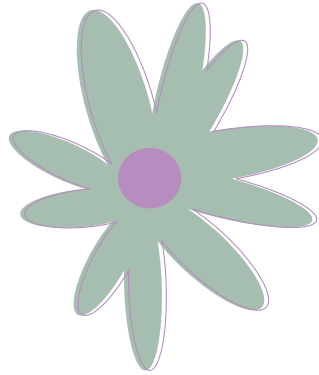
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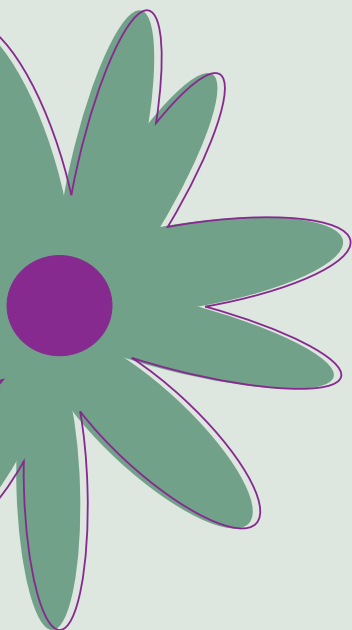
The Royal Women's Hospital does not accept any liability to any person for the information or advice (or use of such information or advice) which is provided in this booklet or incorporated into it by reference.

We provide this information on the understanding that all persons accessing it take responsibility for assessing its relevance and accuracy. Women are encouraged to discuss their health needs with a health practitioner.

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

The diagnosis of cancer and planning your treatment can be extremely stressful and traumatic. Things can feel very rushed, as your treatment 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

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 treatments may arise because:

- the ovaries are damaged by the chemotherapy or radiotherapy, causing loss of some of the eggs (oocytes)
- hormonal signalling between the brain and the ovaries has been disrupted
- there is damage to the 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 with scarring to the uterus, ovaries or more commonly the fallopian tubes. This may cause difficulty with the sperm and egg meeting prior to fertilisation. Occasionally, it is necessary to remove the ovaries and/or the uterus and fallopian tubes 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 can cause temporary or permanent damage.

The effect on fertility will depend on the following:

- your age (as women get older the ovaries are more vulnerable to the effects of the drugs)
- types of drugs used
- dose of drugs
- length of time drugs are used.

Radiotherapy

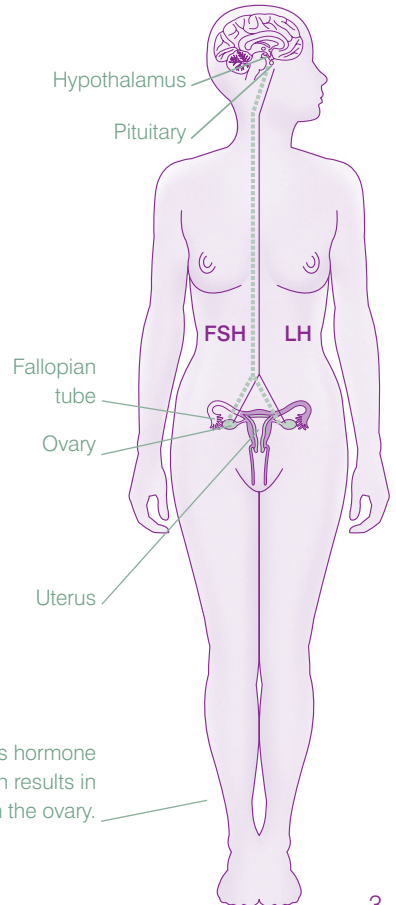
Radiotherapy acts on rapidly dividing cells in a particular area of the body.

Radiation can also act on healthy cells.

When radiotherapy is directed to the pelvis it may damage the ovaries and the uterus.

Follicles

Fluid-filled sacs in the ovaries in which eggs grow to maturity.



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

INFERTILITY AFTER CANCER TREATMENTS

Explaining 'ovarian failure'

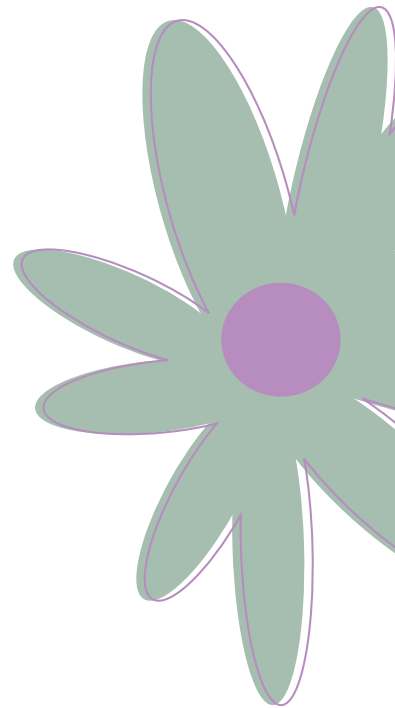
Ovarian failure is the term used to describe the loss of ovarian function. This occurs when the damage to the eggs and follicles is significant after chemotherapy and radiotherapy. The ovaries do not respond normally for the eggs to grow, hence do not produce adequate levels of oestrogen and progesterone. Ovarian failure is characterised by:

- occasional or no periods
- hot flushes
- mood swings
- dryness in the vagina
- urinary symptoms
- low oestrogen
- high follicle stimulating hormone (FSH) and luteinizing hormone (LH) levels
- risk of bone depletion.

It is impossible to conceive with your own eggs while the ovaries are in a state of ovarian failure. However, the ovarian function can change from month to month.

Chemotherapy and radiotherapy can cause ovarian failure. Ovarian failure can 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 TREATMENT

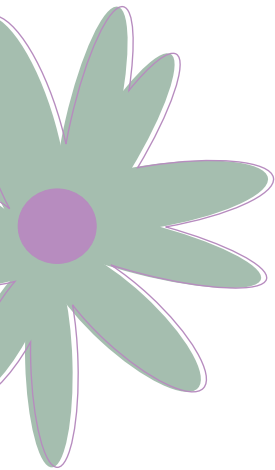
You may choose not to proceed with any of the following techniques to help preserve your fertility, but the opportunity to talk to someone and to become well informed about your options can be very valuable. You may find it comforting to know that, even if you don't proceed now, there may still be options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

Cancer treatments do pose a risk to your fertility, but 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.



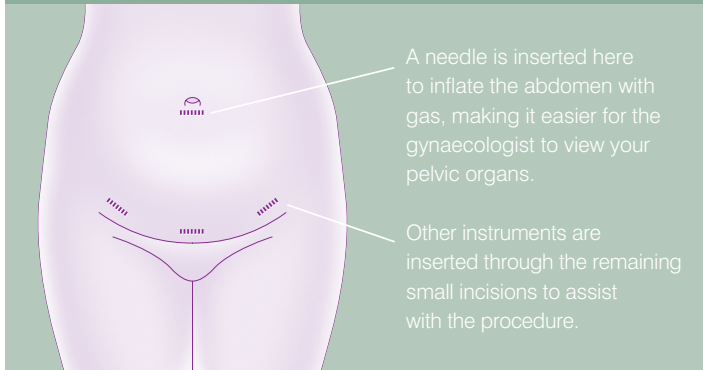
Freezing ovarian tissue, embryos and eggs

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.

Laparoscopy

A laparoscopy involves a series of small cuts through which instruments are inserted including a laparoscope, which is like a tiny telescope to view your pelvic organs.



Freezing ovarian tissue

The process

Before treatment

- discussion/counselling
- laparoscopy to retrieve ovarian tissue
- tissue is frozen.

Later when you are ready to conceive

- ovarian tissue is grafted into the pelvis
- grafted tissue may be stimulated to produce follicles and eggs
- eggs removed using vaginal ultrasound-guided aspiration
- fertilisation using IVF.

YOUR OPTIONS BEFORE TREATMENT

In-vitro fertilisation (IVF)

A procedure in which mature eggs are removed from follicles in the ovary and fertilised by sperm outside the human body.

Later, when you are ready to conceive, 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 follicular development.

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

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

Further research and experimental work needs to be completed before this will be routine clinical treatment. It is also important to be aware that there are risks associated with any operative procedure, including a laparoscopy.

Freezing embryos

This procedure begins with 10–14 days of hormone stimulation. Mature eggs are then removed from the ovaries (using ultrasound-guided aspiration, through the vagina) under sedation. The retrieval process takes about 10 minutes. The eggs are then fertilised with sperm outside the body and frozen. We expect about 80–90 percent of embryos to survive once frozen and thawed.

The current implantation rate (clinical pregnancy rate per embryo transferred) is about 25–40 percent depending on your age.

Freezing embryos

The process

Before treatment

- discussion/counselling
- 10–14 days hormone stimulation to encourage eggs to mature
- eggs removed using vaginal ultrasound-guided aspiration
- fertilisation using IVF
- embryos are frozen.

Later when you are ready to conceive

- embryos are thawed
- embryos are transferred.

YOUR OPTIONS BEFORE TREATMENT

Freezing mature eggs

The process

Before treatment

- discussion/counselling
- 10–14 days hormone stimulation
- eggs removed using vaginal ultrasound-guided aspiration
- eggs are frozen.

Later when you are ready to conceive

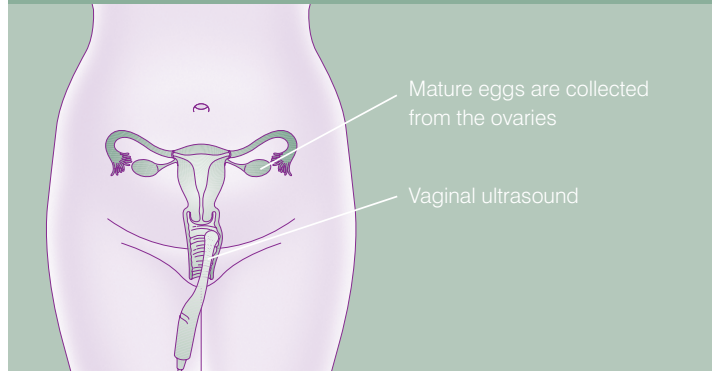
- eggs are thawed
- egg fertilised with sperm using IVF
- embryo/s are transferred.

Freezing mature eggs

This option is for single women or women who are not in a long term-committed relationship. The procedure begins with 10-14 days of hormone stimulation.

Mature eggs are then removed from the ovaries (using ultrasound-guided aspiration, through the vagina) under sedation. The retrieval process takes about 10 minutes. The mature eggs are then frozen.

Ultrasound-guided aspiration

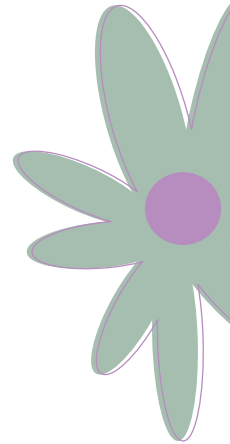


With recent scientific advances we expect 80–90 percent of the eggs to survive the freezing/thawing process for potential fertilisation through IVF. About 50–70 percent of eggs fertilise normally. This means that for every 10 eggs frozen, we can expect about three to four good quality, usable embryos to be created successfully.

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.

For women with hormone-sensitive tumours such as receptor-positive breast cancer, there is a possibility that the hormones used for ovarian stimulation could have a stimulating effect on breast cancer cells. It is impossible to be absolutely sure that the ovarian stimulation is completely safe for women with hormone-sensitive breast cancer.

There have been several reports of the use of tamoxifen (which may protect the breast cell receptors from oestrogen) for ovarian stimulation, however there are no large studies confirming its benefit in this situation.



Tamoxifen

A drug that is used in the treatment of breast cancer to block the effects of oestrogen on the breast.

YOUR OPTIONS BEFORE TREATMENT

Protecting the ovaries during chemotherapy

There are some medications that may protect the ovaries from damage at the time of chemotherapy. These medications are called GnRH analogues and act to induce a temporary state of ovarian shut down, similar to a temporary menopause.

Although there have now been several randomised trials, the results of these studies are variable. However, the summary studies suggest that there is a benefit of GnRH analogues. There are several small studies which have shown that the medication may reduce the chance of ovarian failure 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. Unfortunately, this medication currently can be very expensive, depending on an individual patient's particular medical situation.

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 (and patients have an injection every 28-30 days), but if necessary, the first injection can be given up until the first day of chemotherapy.

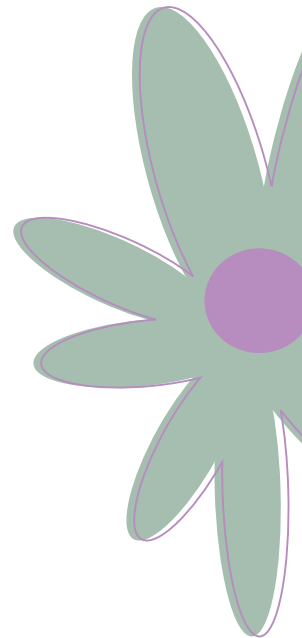
The side effects include hot flushes and mood changes. If they are used for more than six months, there is a risk of thinning of the bones (osteoporosis). If the chemotherapy treatment lasts longer than a six month period, then some extra oestrogen replacement may be given to protect against osteoporosis.

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 units have an active egg donation program and some have an embryo donation program. Many units 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.

All doctors and counsellors at the Royal Women's Hospital and Melbourne IVF have experience in this field.

Services include consultations and programs for young women and their families, both before chemotherapy begins and in a 'Late Effects Clinic' for women after cancer therapy.

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
- self referrals are also possible, but we would still appreciate a letter from a health professional.

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

Please specify that the referral is for Fertility Preservation Service and explain how quickly your appointment is required e.g. within 48 hours, or seven days to avoid any delay.

Reproductive Services Unit
The Royal Women's Hospital
2nd floor, Cnr Grattan St & Flemington Rd
Parkville, Victoria 3052

Tel (03) 8345 3200

Appointments

Often two appointments will be required to give you the best opportunity for information gathering, consideration and then decision-making. Both medical and counselling appointments can be made for the first visit to allow you and your family a further opportunity to discuss various issues in a separate, non-medical and supportive environment.

CONTACT DETAILS

Follow-up appointments

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

Follow-up appointments can be made for three to six months after completion of cancer treatment and then yearly (or as required) thereafter.

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 of \$150–200. 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.

Melbourne IVF

10/320 Victoria Pde
East Melbourne VIC 3002

Tel (03) 9473 4444

Fax (03) 9473 4454

Web www.mivf.com.au

Reproductive Services Unit

The Royal Women's Hospital
Level 2, Cnr Grattan St & Flemington Rd
Parkville, Victoria 3052

Tel (03) 8345 3200

Fax (03) 8345 3260

Web www.thewomens.org.au

USEFUL RESOURCES

Fertility resources for cancer patients, advocacy and information

Fertile Hope

Web www.fertilehope.org

The Fertility Society of Australia

The society has links to the fertility preservation special interest group and offers general information addressing many fertility issues.

Web 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.

Web www.rch.org.au/rch_gynaecology

The Royal Women's Hospital

The Endocrine and Metabolic Clinic at the Women's provides specialist advice for hormonal issues for adolescent girls. The Women's and Melbourne IVF websites also provide online information about the Fertility Preservation Service offered.

Web www.thewomens.org.au

Web www.mivf.com.au

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.

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

Oncofertility Consortium

The Oncofertility Consortium addresses the complex health care and quality-of-life issues that concern young cancer patients whose fertility may be threatened by their disease or its treatment. This resource will help you navigate the complex fertility issues facing patients with cancer and other serious diseases.

Web <http://oncofertility.northwestern.edu>

Support for quality of life after cancer

LIVESTRONG Foundation

Web www.livestrong.org

For a range of online information

Breast Cancer Network Australia

Web www.bcna.org.au

The 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.

Tel 13 11 20 Helpline

Monday to Friday, 8.30am–6.00pm

Web www.cancervic.org.au

Susan G Komen Breast Cancer Foundation

An American based leader in the fight against breast cancer. Funds research grants and supports education, screening and treatment projects in communities around the world.

Web www.komen.org

Early Menopause

A Jean Hailes – For Women's Health website providing information on early menopause and premature ovarian failure.

Web www.earlymenopause.org.au

Centre for Adolescent Health

The Royal Children's Hospital
For issues relating to adolescent health.

Tel (03) 9345 5890

Web www.rch.org.au/cah

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