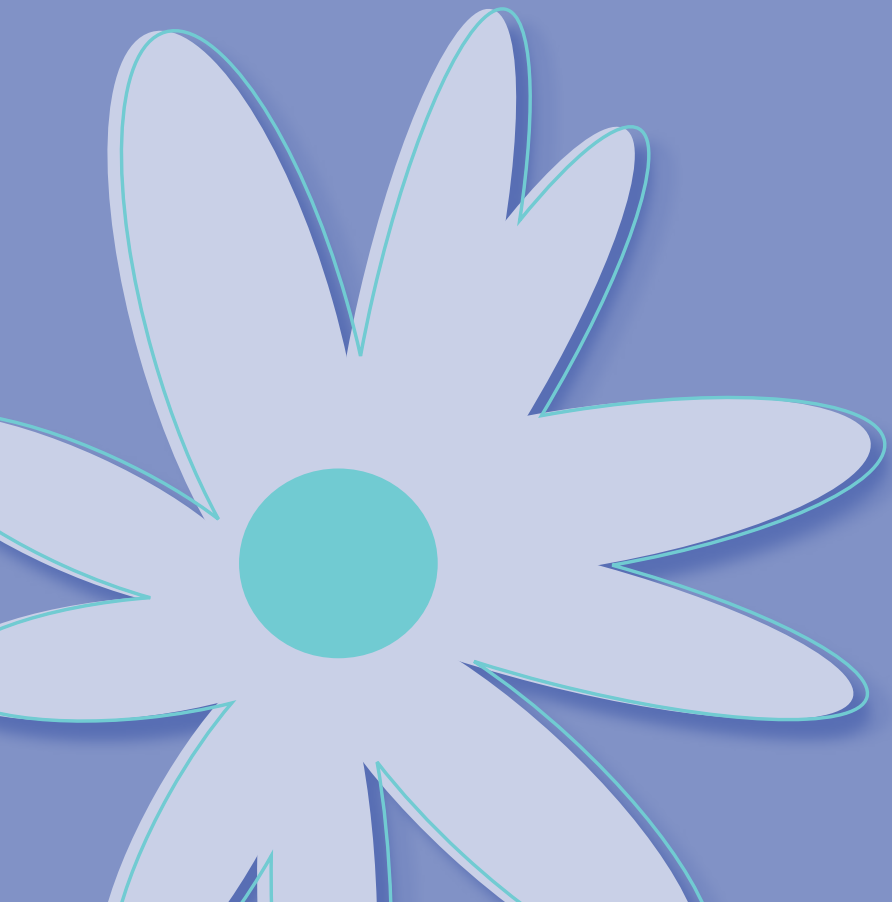
the women's
the royal women's hospital

Can I still have children?

Fertility options for young women having chemotherapy and radiotherapy



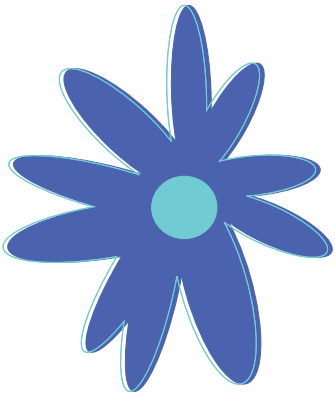
This booklet was produced by Reproductive Services at the Royal Women's Hospital and edited by the Women's Consumer Health Information team.

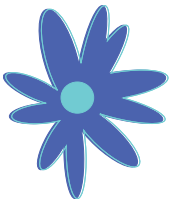
If you would like to make any comments about this booklet please contact the Women's Consumer Health Information team on (03) 8345 3040 or email rwh.publications@rwh.org.au

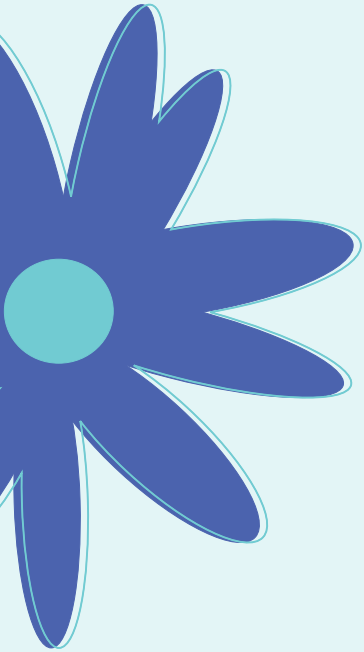
The original booklet was produced in conjunction with the Cancer Council Victoria in February 1996

The Royal Women's Hospital and Melbourne IVF

October 2004







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 will often be organised while you are still just 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

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.

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

Infertility after cancer treatments may arise because:

- the ovaries are not able to produce mature eggs (ovarian failure), this can be temporary or permanent
- 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.

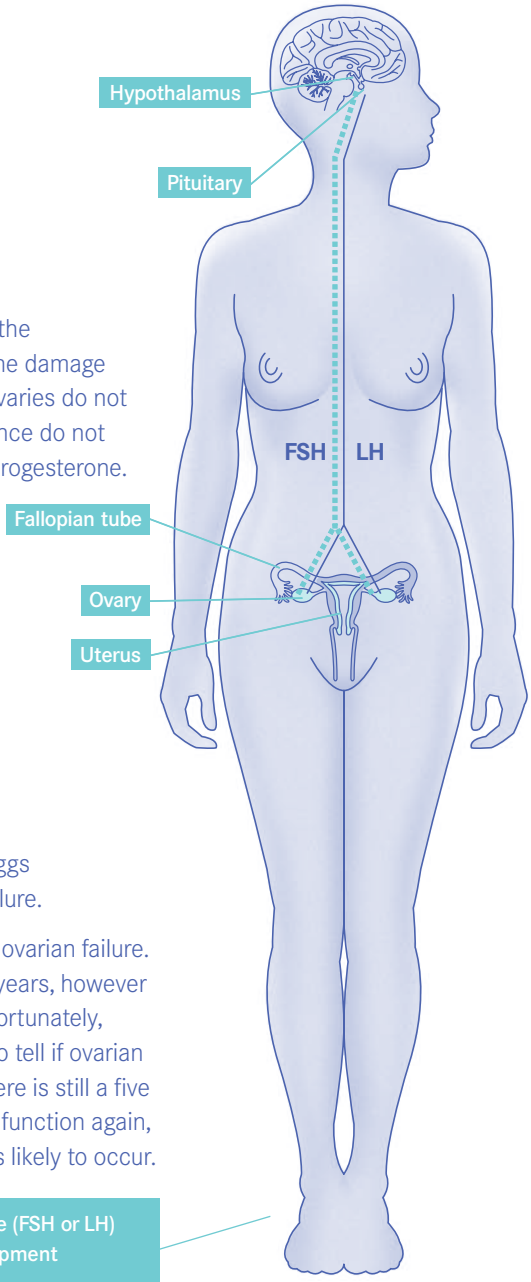
Explaining 'ovarian failure'

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. The ovaries do not respond normally to make growing eggs, 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.

Chemotherapy and radiotherapy can cause ovarian failure. Temporary ovarian failure can last for a few years, however some ovarian failure will be permanent. Unfortunately, in the first couple of years, there is no way to tell if ovarian failure will be permanent. After five years there is still a five percent chance that the ovaries will start to function again, but it is impossible to predict in whom this is likely to occur.



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

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.

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 are:

- 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.

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.

Later, when you are ready to conceive, the ovarian tissue slices are grafted back into your pelvis. Around nine months later, the grafted ovarian tissue can start to produce reproductive hormones and follicular development.

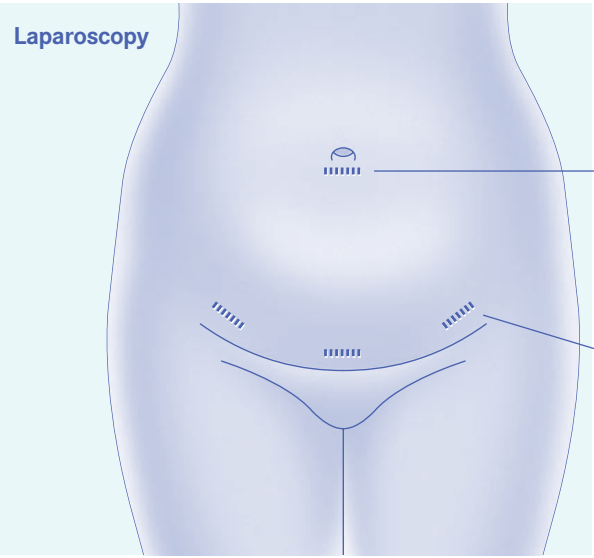
Pregnancy may be achieved either with ovarian stimulation and IVF, or perhaps even naturally.

There are now several studies suggesting that this could be a useful treatment option as several babies have now been born after using this technology.

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

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.

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.



A needle is inserted here to inflate the abdomen with gas, making it easier for the gynaecologist to view your pelvic organs.

Other instruments are inserted through the remaining small incisions to assist with the procedure.

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.

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 partner's sperm using IVF
- embryo/s transferred.

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 your partner's sperm (or donor sperm) outside your body and frozen. Embryos tend to survive the freezing/thawing process better than mature eggs. We expect about 70–80 percent of embryos to survive once frozen and thawed.

The current implantation rate (clinical pregnancy rate per embryo transferred) is about 20–30 percent depending on your age.

Freezing mature eggs

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 mature eggs are then frozen.

We expect about 50–60 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 two to three embryos to be created successfully.

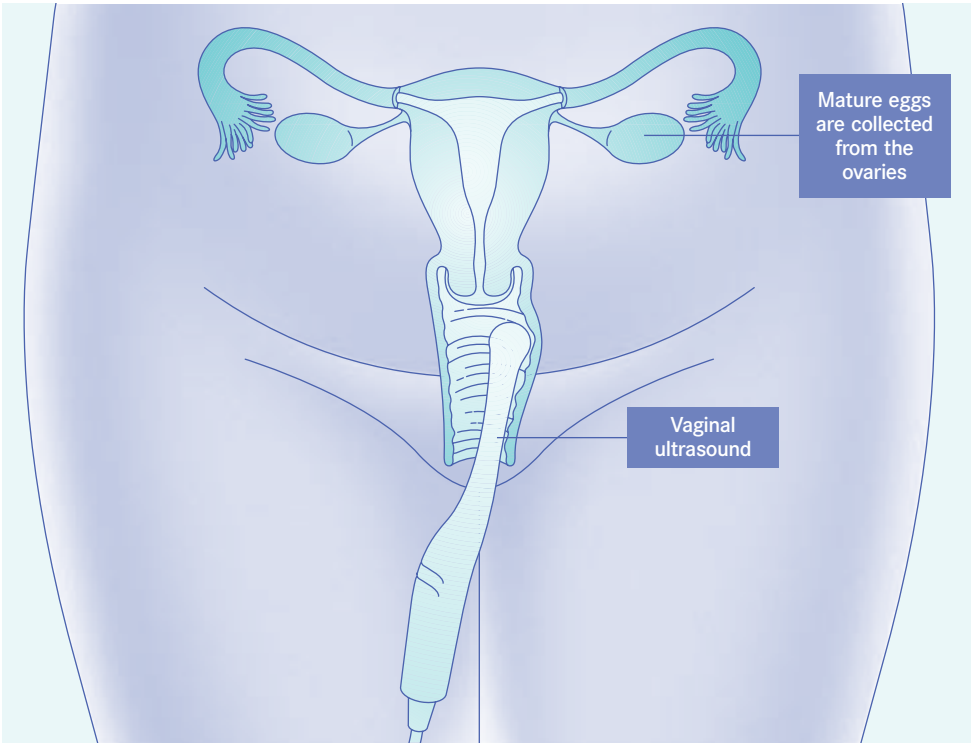
You may have enough time before starting your chemotherapy/radiotherapy, to have more than one cycle of hormone stimulation and egg retrieval. This ensures that you have a reasonable number of eggs to freeze and therefore an increased chance of a future pregnancy.

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.

Ultrasound-guided aspiration

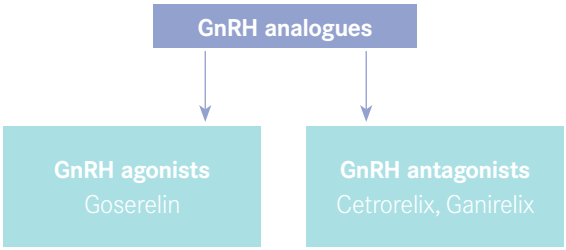


Protecting the ovaries during chemotherapy

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.

To date there have not been any large randomised trials that confirm the benefits of the GnRH analogues. However, 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.

There are two kinds of GnRH analogues, the difference is explained below.



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 start ideally from about 7-10 days before the first dose of chemotherapy, but can be given up until the first day of chemotherapy if required.

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.

GnRH antagonists

The GnRH antagonists work, like the agonists, to induce a temporary state of ovarian shut down. There is less evidence about the effectiveness of GnRH antagonists than there is about GnRH agonists.

The potential advantage of these medications is that they work very quickly and are quite short acting and may only need to be used for about 12 days per cycle. This means about three injections in total, given four days apart. The side effects of hot flushes, low oestrogen and possible mood changes may not be experienced the whole time.

It is important to understand that since there have not been any large, well-conducted studies on the benefits of GnRH analogues in ovarian protection, the use of these medications is still experimental.

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.

Where to get help and information

Fertility Preservation Service, the Royal Women's Hospital (RWH) and Melbourne IVF (MIVF)

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.

Fertility Preservation Service staff

Dr Kate Stern (MIVF and RWH)
Dr Rachael Knight (MIVF and RWH)
Dr Manuela Toledo (MIVF and RWH)
Dr Julie Whitehead (MIVF and RWH)
Dr Debra Gook senior scientist (RWH)
Ms Kay Oke counsellor (MIVF and RWH)
Dr Hayley Matic counsellor (MIVF and RWH)

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,
Level 2, cnr Grattan St & Flemington Rd
Parkville Victoria 305
Fax (03) 8345 3260

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.

For appointments with Dr Kate Stern, Dr Rachael Knight or Dr Manuela Toledo at the Royal Women's Hospital
Reception Tel (03) 9344 2372
Counsellors Tel (03) 9344 2057

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 and embryos 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 3002
Tel (03) 9473 4444
Fax (03) 9473 4454

Dr Kate Stern
3/320 Victoria Pde
East Melbourne 3002
Tel (03) 9415 1838
Fax (03) 9416 2581
Pager (03) 9387 1000

Dr Rachael Knight
3/320 Victoria Pde
East Melbourne 3002
Tel (03) 9416 5233
Fax (03) 9416 2581

Dr Lyndon Hale
3/320 Victoria Pde
East Melbourne 3002
Tel (03) 9416 3862
Fax (03) 9416 2581

Dr Fleur Cattrall
3/320 Victoria Pde
East Melbourne 3002
Tel (03) 8415 0800
Fax (03) 9416 2581

Dr John Mcbain
4/320 Victoria Pde
East Melbourne 3002
Tel (03) 9417 3755
Fax (03) 9416 1787

Dr Penny Foster
4/320 Victoria Pde
East Melbourne 3002
Tel (03) 9416 1586
Fax (03) 9416 1787

Dr Michael Gronow
4/320 Victoria Pde
East Melbourne 3002
Tel (03) 9416 1629
Fax (03) 9416 1787

Dr Geoff Clarke
4/320 Victoria Pde
East Melbourne 3002
Tel (03) 9416 1614
Fax (03) 9416 1787

Dr Raphael Kuhn
4/320 Victoria Pde
East Melbourne 3002
Tel (03) 9416 2470
Fax (03) 9416 4627

Dr Manuela Toledo
119/320 Victoria Pde
East Melbourne 3002
Tel (03) 9415 1815
Fax (03) 9416 4274
Pager (03) 9387 1000

Dr Jim Tsaltas
119/320 Victoria Pde
East Melbourne 3002
Tel (03) 9416 1172
Fax (03) 9416 4274

Dr Julie Whitehead
Tel (03) 9419 4266
Fax (03) 9349 1387

Centre for Adolescent Health *(for issues relating to adolescent gynaecology)*

The department of Adolescent Gynaecology at The Royal Children's Hospital provides specialist advice regarding sexuality and contraception issues, as well as counselling for young girls having cancer treatment. The Endocrine and Metabolic Clinic at the Royal Women's Hospital also provides specialist advice for hormonal issues for adolescent girls.

2 Gatehouse Street
Parkville 3052
Tel (03) 9345 5890
Fax (03) 9345 6343

Dr Paddy Moore
The Royal Children's Hospital
Tel (03) 9345 5522

Mercy Hospital for Women
Tel (03) 9270 2612

Dr Yasmin Jayasinghe
The Royal Children's Hospital
Tel (03) 9344 5522

Useful resources

Reproductive Services Unit
The Royal Women's Hospital
Tel (03) 8345 3200
Fax (03) 8345 3260

Melbourne IVF
Tel (03) 9473 4444
Fax (03) 9473 4454

Fertility resources for cancer patients, advocacy and information
Fertile Hope
Web www.fertilehope.org

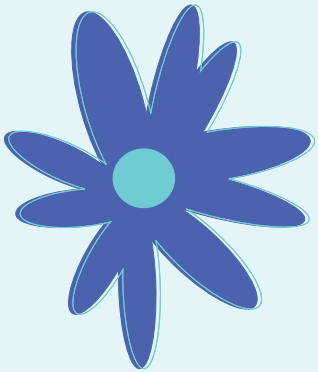
Support for quality of life after cancer
Lance Armstrong Foundation
Web www.laf.org

For a range of online information
Breast Cancer Network Australia
Web www.bcna.org.au

The Cancer Council Victoria
The Cancer Council Victoria's cancer 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 (Monday to Friday)
8.30am – 5.30pm
Web www.cancervic.org.au

Susan G Komen Breast Cancer Foundation
An American based leader in the fight against breast cancer through its support of research and community based outreach programs. Funds research grants and supports education, screening and treatment projects in communities around the world.
Web www.komen.org

Early Menopause Australia Support Group
(Supported by the Jean Hailes Foundation)
Tel (03) 9562 6771
or toll-free 1800 151 441
Web www.jeanhailes.org.au



MELBOURNE IVF

Reproductive Services
The Royal Women's Hospital
Level 2, cnr Grattan St and Flemington Rd
Parkville, Victoria 3052
Tel counsellors (03) 8345 3200 (9.00am – 5.00pm)
Tel reception (03) 8345 3200 (8.30am – 4.00pm)

DO7-101 design@thewomens February 2008 **Stock No 306207**