

## Information for Patients

# Fertility care for women diagnosed with cancer

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## Welcome to the Fertility Preservation Service at Saint Mary's Hospital.

### Overview

As cancer treatments improve, the problems faced by survivors of cancer and the complications of cancer therapies become more important. Many survivors are young and are diagnosed and treated before they have children. Cancer and its treatment can significantly affect the chance of a patient having a child in the future. We therefore realise how important it is that all patients are able to discuss the effects of treatment with a fertility expert and explore whether they are able to store eggs, sperm or embryos before their cancer treatment, which could be used to help them have their own biological child in the future.

Patients in this situation are faced with two devastating diagnoses simultaneously – cancer and infertility. Having to face both diagnoses can cause huge distress and therefore all patients will be offered an appointment to see one of our counsellors if they wish.

### Our Service

Saint Mary's Hospital has stored sperm for men facing cancer treatment for many years. Our Fertility Preservation service for female patients started in 2008. We appreciate that cancer treatment often has to start very quickly and if so we will see you within one week.

We offer NHS treatment to eligible patients and continue to work with health care purchasers to ensure that treatment is available to as many patients as possible.

### The Effects of Cancer Treatment on Fertility

Following cancer treatment, most patients will be advised to delay conceiving for a period of time. Female fertility declines sharply in a woman's mid to late thirties and even just this delay can significantly reduce the chance of conception.

### Chemotherapy

Oocytes (eggs) are highly susceptible to the effects of chemotherapy. Women treated with chemotherapy are therefore at risk of damage to their eggs, which may ultimately result in failure of the ovaries. The risk of ovarian failure is higher with increased dose and duration of chemotherapy and with particular types of chemotherapeutic medication. It is also more likely in women who already have reduced numbers of eggs, ie, older women. A woman's period may stop during chemotherapy, but may come back up to nine months after chemotherapy treatment has finished. Although some women will retain eggs in their ovaries after chemotherapy treatment, unfortunately many will suffer premature ovarian failure and would need to consider treatment with donated eggs if they wish to conceive.

## Radiotherapy

Whilst most chemotherapy treatments are administered systemically (throughout the body), most radiotherapy treatments are directed to a local area. Therefore damage from radiotherapy is usually limited to the area treated. Pelvic radiotherapy is highly damaging to eggs and it is extremely rare for women to retain significant ovarian reserve after such treatment. Additionally, pelvic radiotherapy can cause damage to the uterus (womb) caused by fibrosis (the formation of excess fibrous connective tissue in an organ or tissue) and a reduction in blood flow. Following pelvic radiotherapy, it is likely that a woman would need to consider fertility treatment using donated eggs and a surrogate host.

## Surgery

Surgery for gynaecological malignancies can impact on a woman's chance of pregnancy in the future. Fertility options may therefore include the need for treatment with donated eggs or a surrogate host. It is important that a woman's desire for future pregnancies is always considered and that fertility sparing treatment is performed whenever possible. This is always discussed with the woman and the surgeon responsible for her cancer treatment.

## Fertility Preservation Options

### 1. Oocyte cryopreservation - Egg Freezing

Women may attempt to 'freeze' eggs for future use, before they undergo treatment such as chemotherapy, which may affect their egg store.

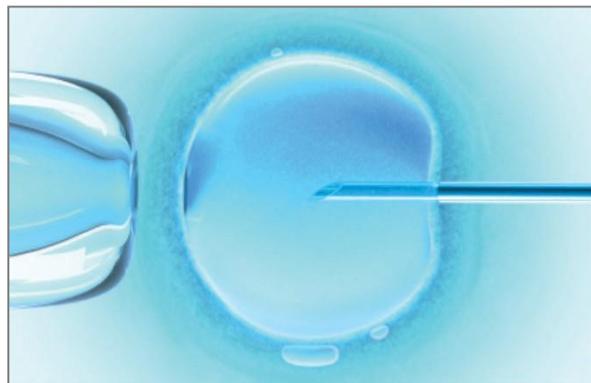
Oocytes (eggs) are stimulated to develop within the ovaries by daily administration of hormone injections. Following this, the eggs are removed from the ovaries under ultrasound control. The eggs removed are then frozen very rapidly using the technique of vitrification. Eggs can be stored for up to 55 years.

Vitrification has been shown to be the most effective way of freezing human eggs with more than 90% of vitrified eggs surviving after thawing. For women under the age of 35 years, approximately 1 in 3 cycles of egg freezing will result in an ongoing pregnancy. The number of pregnancies depends on the number of eggs stored, with each egg having approximately a 5% chance of leading to pregnancy in women under 35 years. The chance of a pregnancy following a cycle of egg freezing reduces as women age.

Oocyte vitrification is still a relatively new technique, however, many babies have now been born after using this technique. Initial data suggest that there is no increase in abnormality rates in babies conceived after eggs frozen in this way.

## 2. Embryo cryopreservation (Freezing)

If a woman is in a stable relationship, the couple may wish to freeze embryos instead of eggs. The woman undergoes a cycle of ovarian stimulation and egg retrieval as in conventional IVF. On the day of egg collection, the male partner is asked to provide a fresh sample of semen, produced on site in the Andrology Department. All mature eggs retrieved are injected with a single sperm using a technique known as ICSI (Intra-Cytoplasmic Sperm Injection).



Egg fertilisation using IVF (left) and ICSI (right)

On average, about 50-60% fertilise and form embryos. The laboratory will ring you the morning after egg collection to tell you how many eggs fertilised. The embryos are now at the 'pronuclear' one cell stage. It is at this stage that embryos will be vitrified for fertility preservation. In the UK embryos may be stored for up to 55 years.

Embryo freezing is a relatively successful procedure and follow-up studies on babies born are reassuring. Approximately 1 in 3 couples will conceive following embryo freezing if the woman is under 35 years of age. Embryo storage should only be carried out for couples in a stable relationship as, if the couple separates, the male partner may withdraw his consent for continued storage and treatment. As a result, the embryos would have to perish.

## What Treatment Involves

For both egg and embryo freezing you will need to undergo ovarian stimulation and egg collection.

### 1. Ovarian Stimulation

Ovarian stimulation involves daily injections of a drug (Gonadotropin) to stimulate your ovaries.

Injections are subcutaneous (beneath the skin) – given through the abdomen or thigh.

The site of the injection needs to be changed daily – usually from side to side (left/right). We recommend you do the injections at the same time every day. We will advise on timing at the start of treatment.

The drug dose may change during treatment depending on your response to the drug.

You may experience a feeling of heaviness or pressure inside the abdomen as the ovaries get bigger – this is normal.

It is important to follow all instructions on drug dosage and timing. You should inform us immediately if there are any problems with this.

You will need to administer this injection for approximately 10-12 days.

## 2. Drugs to ‘switch off’ your hormone production

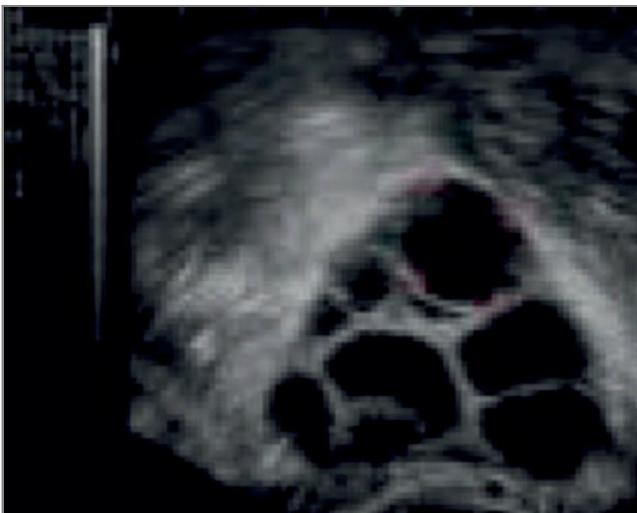
In addition to your stimulating injection you will be prescribed GnRH before Antagonist (cetrotide) in the form of injections. You will be advised how and when to administer these injections. You may be asked to continue the antagonist for a week following your egg collection. Additionally women with hormone sensitive breast cancer will be asked to take letrozole tablets from day 4 of stimulation until 7 days after egg collection.

**The treatment you are prescribed will be individual to you. The protocol and time to start stimulation will be decided depending on any other treatment you are undergoing and to minimise any delay to oncology treatment. If you have any questions please ask.**

## 3. Monitoring through stimulation

During stimulation you will be monitored using blood tests and scans.

2-3 scans are usually done during the treatment cycle to monitor response to treatment – by way of growth of follicles in the ovaries.



Scan appearance of stimulated ovary

All scans during the treatment cycle are performed vaginally, as very detailed scans can be obtained in this way, giving accurate measurements of the ovaries indicating the stage of growth of the follicles and readiness for egg collection.

All blood tests are taken between 7.30 am and 8.30 am.

#### 4. Ovulation trigger with Buserelin

Buserelin is the last and final injection before egg collection is carried out.

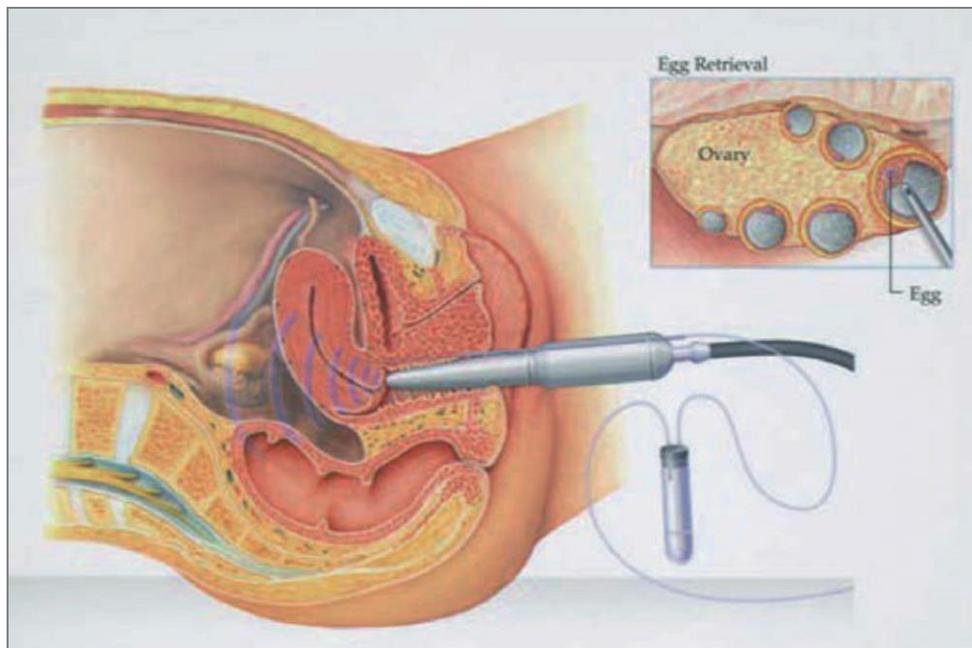
**Timing of this injection is very crucial.**

The injection must be taken at the time advised by the Unit (this is 34-36 hours before egg collection). This is a late night injection (timing starts from 10.00 pm).

**This is the last injection you have prior to the egg collection.**



#### 5. Egg collection



Egg collection usually lasts 20-30 minutes and is usually performed in the morning under intravenous sedation.

The procedure is guided by vaginal ultrasound.

You will be required to starve from midnight before egg collection (no food, water or chewing gum).

Not all follicles seen on scan yield eggs.

You may experience some pain and bleeding after the procedure.

Chemotherapy, when indicated, could possibly be arranged to commence from as soon as the day after egg collection.

## What are the Risks of Fertility Preservation Treatment?

Throughout treatment, we work closely with the team planning cancer treatment, to minimise any risk to you or delay to your cancer treatment.

- **Delay to cancer treatment**

When the intention is to freeze eggs or embryos, ovarian stimulation can start at any time in the menstrual cycle as there is no need to ensure that the lining of the womb is at the same stage of the cycle as the ovaries. However, ovarian stimulation takes a minimum of just over two weeks. It is therefore crucial that women are referred as early as possible in their treatment pathway to give them the opportunity to consider fertility treatment if they wish without delay to their oncology treatment.

In some cases, such as acute leukaemia, any delay to the start of chemotherapy may be significantly detrimental and these women are not able to freeze eggs or embryos, although male patients would usually have time to freeze a semen sample.

- **Risk of high oestrogen levels during stimulation**

High levels of oestrogen are seen during ovarian stimulation cycles. This could pose a risk to women diagnosed with an oestrogen sensitive breast cancer. Addition of the drug Letrozole is known to significantly lower oestrogen levels and we use this routinely for oestrogen positive breast cancer patients. There are no large, long-term follow-up studies, but early data has not demonstrated an increased risk of recurrence or disease progression in these patients.

- **Risk from egg retrieval**

There is a potential risk for women with ovarian malignancies following egg collection when there could be a spill of malignant cells from the ovary into the abdomen, although in practice this is rarely thought to be significant. We always discuss this with the oncologist to minimise any risk.

- **Ovarian Hyperstimulation Syndrome (OHSS)**

OHSS is a complication seen in approximately 1% of women undergoing a cycle of ovarian stimulation for egg recovery. The risk is no higher in patients undergoing fertility preservation, but we usually continue with drug therapy for one week after egg collection to try to reduce the risk further, so that the woman is in the best position to commence her oncology treatment.

## Your Options

Once you have considered all the information you may choose:

- Not to proceed with fertility preservation.
- To consider possible egg donation in the future.
- To proceed with egg or embryo freezing.

If you choose to proceed with egg or embryo freezing you will initially be asked to consent for 10 years of storage. Once your oncology treatment is complete you will have the opportunity to discuss your future options. You will be assessed and treated in line with Clinical Commissioning Group (GGC)/Trust Infertility/assisted conception guidelines.

## Counselling

Patients have found counselling extremely helpful and it is available to all patients referred to us. To make an appointment please ring our reception desk on (0161) 276 6494, Monday – Friday, 9.00 am – 1.00 pm.