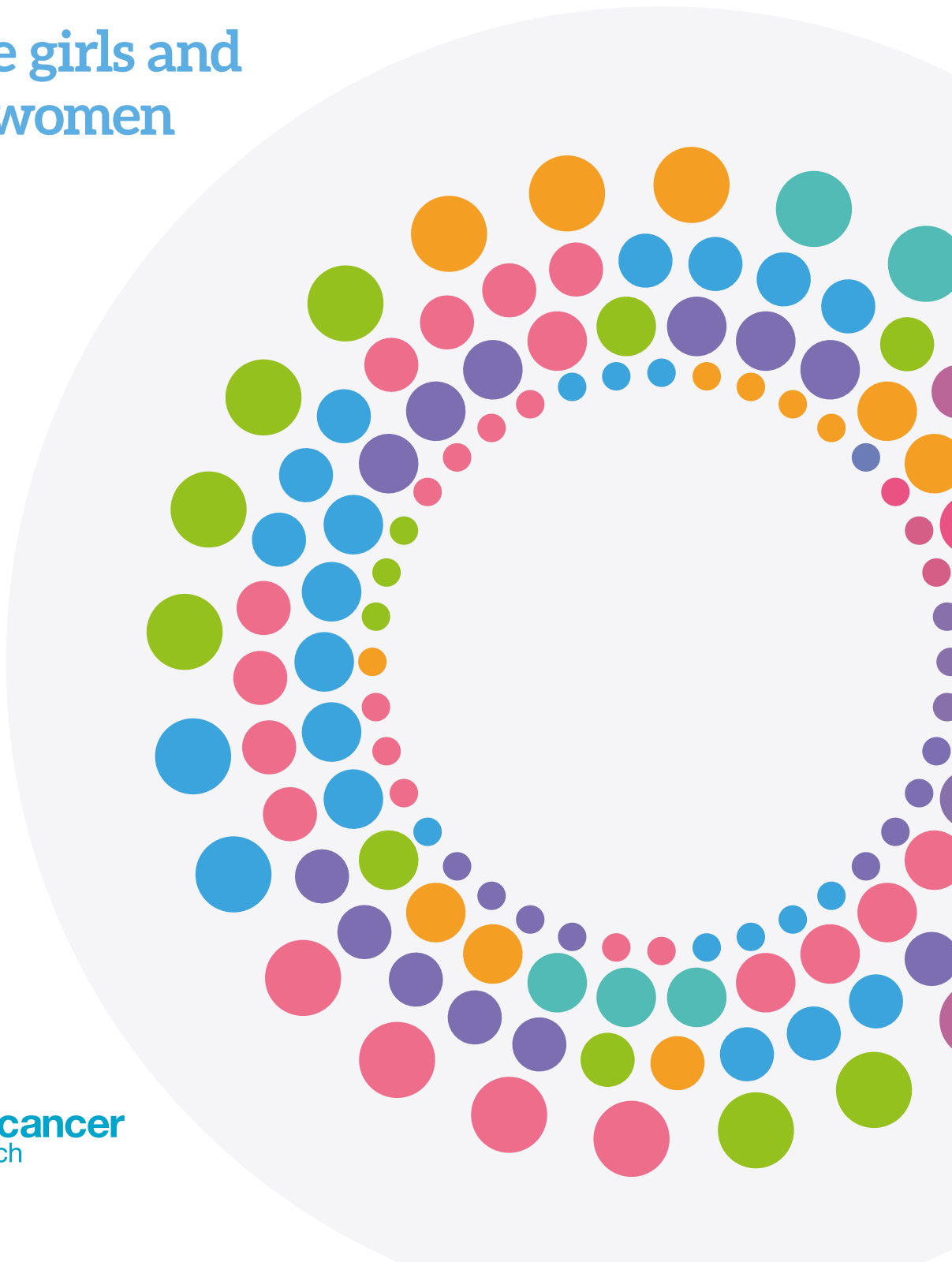


Cancer, Fertility & Me

Teenage girls and
young women



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Disclaimer: Every effort has been made to provide accurate and complete information at the date of publication. However, errors can occur. If you have any questions, ask your cancer care team and fertility care team for more information (October 2021).

About the Cancer, Fertility and Me booklet

If you've been diagnosed with cancer, you will have a lot on your mind. You're likely to go through a whole range of feelings and emotions from the point of diagnosis onwards, and you're likely to have many questions.

"I did feel unsure for some part but when I'd made the decision I was sure that that's what I wanted to do. And I'm glad I did, it was the right decision to make."

A 20 year old young woman with lymphoma

Cancer and its treatment may affect fertility and the chances of becoming pregnant in the future.

This information may be new to you. Or you may be aware of this already and wondered whether you'll still be able to have a family in the future. Whether having children is definitely in your plans, or if it all feels too far away to really know either way, this booklet gives information to help you think about fertility preservation. Fertility preservation treatments are ways of helping girls and young women with cancer have a higher chance of becoming pregnant and having a child in the future after their cancer treatment.

We hope this booklet will help you to understand more about fertility preservation. Although the decisions you have are personal and the choices you make are entirely yours, we hope this booklet will support you to know what options are available and help you to make the best decision for you.

This booklet has information to help you:

- Understand more about how cancer treatments may cause fertility problems in young women.
- Understand more about how young women with cancer can preserve their fertility, **before** starting cancer treatment.
- Understand which options to preserve fertility may fit best into your life.
- Understand family planning decisions **during** and **after** cancer treatment.

This booklet may be helpful to you if:

- You have recently been diagnosed with cancer.
- You may want to become pregnant and try to have a child in the future after your cancer treatment has been completed.
- You would like to learn more about fertility preservation treatment
- You would like more information to help you make a decision about fertility preservation.



Using this booklet to help you make a decision

"I'm thinking about in five years, what about in ten years? What about in the future?"

A 25 year old young woman with ovarian cancer

To support you to make fertility preservation decisions before starting cancer treatment, this booklet has information to help you:

- **Learn** more about the different fertility preservation options.
- **Think** about whether fertility preservation may be an option for you.
- **Think** about what is important to your life now and in the future.
- **Talk** to your cancer care team and fertility care team whilst you make your decision.
- **Discuss** with your cancer care team and fertility care team the consequences and benefits of any decision you may make.

"It answered a lot of my questions. It made me understand more about my treatment and my options. It answered questions that I wouldn't necessarily ask, it gave me information that I didn't think I needed to know"... It wasn't pushing me in any direction. It was very objective, it was clear with what it was saying and it wasn't saying any of them were better options than the other. It was just stating facts and explaining what it meant and it let me make a decision on whether I liked it or not."

A 20 year old young woman with lymphoma

There are prompts to help guide you through the booklet:



Content pages tell you where you can find sections about cancer treatment, fertility problems, fertility preservation decisions and family planning.



Decision pictures help show what fertility decisions young women can make, before, during and after cancer treatment.



Tables compare different fertility preservation options, showing which features of them are the same or similar, and how they differ.



Questions help you to think about the questions that you may want to ask your cancer and fertility care teams before you start cancer treatment.



Give ideas of the sorts of things you might want to ask your cancer care team and/or your fertility care team about.



My values questions to help you think about which fertility preservation option fits best into your life at this time.



Writing spaces give space for you to jot down notes, key points and questions about your cancer diagnosis and future fertility.



Glossary gives the meaning of the terms used to talk about cancer and its treatment, fertility and fertility preservation.

It is important to remember:

1. Some, but not all, young women who are treated for cancer go on to have fertility difficulties.
2. Some of the fertility preservation procedures are not suitable for all young women.
3. Some of the fertility preservation procedures are not available in all fertility clinics.

Introduction

This section is about how cancer treatment can affect fertility.

Cancer is the name given to a disease caused by the body's cells dividing without stopping.

When this happens, the cells form a cluster of abnormal cells that grow and can often move to parts of the body where they are not needed.

Cancer treatments try to remove the cancer and stop it from coming back. The main treatments are chemotherapy, radiotherapy, surgery, hormone therapy and targeted drug therapy.

Most cancer treatments have side effects, but people can be affected differently by the same treatment. Some side effects last for a short time, but some can last longer. In young women, one possible side effect is lowered fertility.

The parts of a young woman's body that are involved in fertility are called the 'reproductive system' (see image 1).

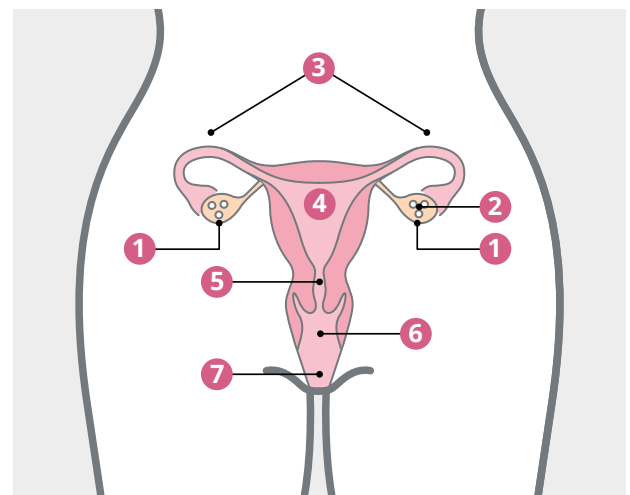
Cancer treatments can affect fertility by:

- Damaging or lowering the number of eggs stored in the ovaries.
- Damaging the part of the brain that controls the fertility hormones.
- Removing or damaging a part of the female reproductive system.

The ways in which cancer treatments affect fertility depends upon the type of cancer and the treatment you may have.

Not all young women that have cancer treatment will have a fertility problem in the future.

Image 1: The female reproductive system



The key parts of the reproductive system are:

- 1 Ovaries** - these two organs sit on either side of the womb inside a woman's body between her hips (pelvis). The ovaries make the eggs and hormones needed to have a baby. These eggs travel down the fallopian tubes to the womb.
- 2 Egg** (oocyte) - the female reproductive cell, which after fertilisation with sperm is capable of developing into a baby.
- 3 Fallopian tubes** - the two tubes that connect each ovary to the womb (uterus) and this is where the egg is fertilised by the man's sperm.
- 4 Womb** (uterus) - this sits inside the pelvis and gives the fertilised egg (embryo) a safe place to grow.
- 5 Cervix** - the opening to the womb which allows menstrual blood to leave the body (periods), and the woman to give birth.
- 6 Vagina** (birth canal) - the opening between the lower part of the cervix and the outside of the body.
- 7 Vulva** - the area around the entrance to the vagina.

How cancer treatments influence fertility

This section tells you more about how cancer treatments can affect your fertility.

There are many factors that can influence whether or not a young woman gets a fertility problem after having cancer treatment. These factors include the young woman's age, her fertility and health before she had cancer, the type of cancer she has and the type of cancer treatment she has.

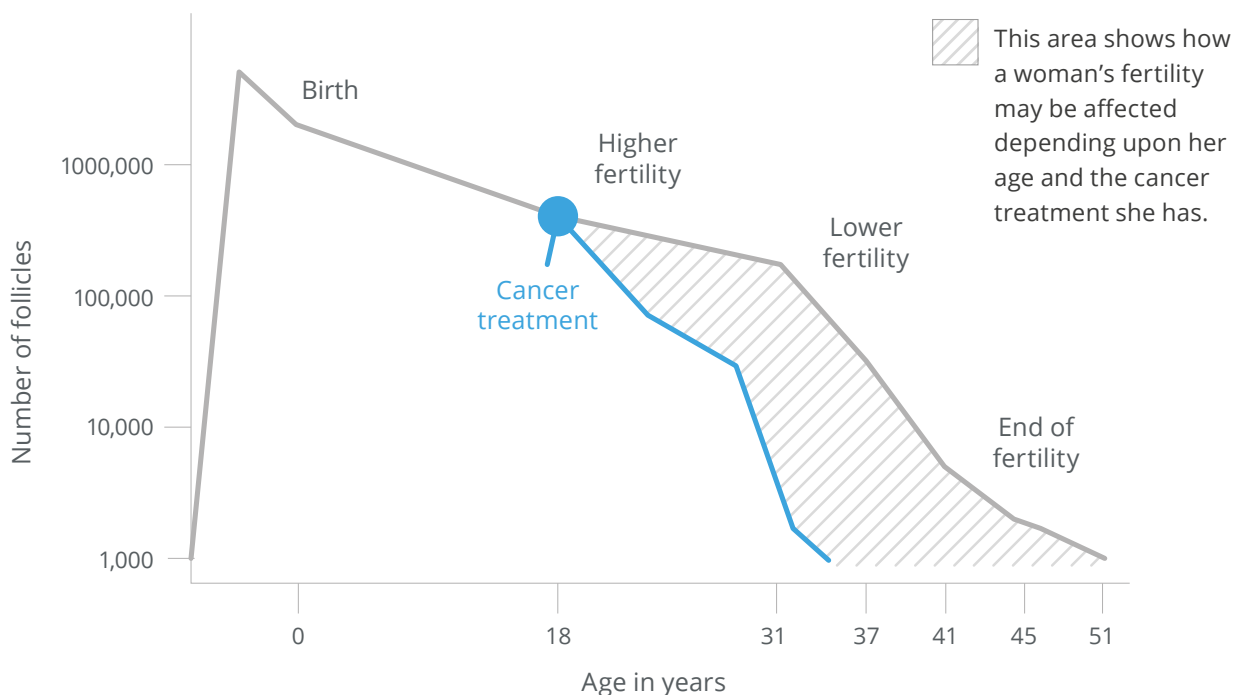
It is hard to know how a young woman's fertility will be affected because there are lots of different things that can influence fertility. However, not all young women that have cancer treatment will have a fertility problem in the future. Often, it is only after the cancer treatment has stopped that we can try to work out if a young woman's fertility has been affected.

To discuss more about your chance of having fertility problems in the future, you may want to talk to your cancer care team and fertility care team before you start your cancer treatment. These teams could help work out how your choice of cancer treatment may impact on your fertility.

The graph below shows how cancer treatment may affect a young woman's fertility. In particular, the graph shows that a young woman may have less eggs in her ovaries after cancer treatment. The grey shaded area on the graph shows that a young woman's fertility may be affected differently depending on her age and the cancer treatment she had.

Your level of fertility may fall somewhere in the shaded area below. Your cancer care and fertility care teams may be able to help you work out how your fertility could be affected.

Graph 1: How cancer treatment may affect women's fertility compared with the decline in women's fertility naturally



Source: <http://oncofertility.northwestern.edu/resources/assessing-ovarian-reserve-after-cancer-treatments>

How cancer treatments affect fertility



The main types of cancer treatment are: chemotherapy, radiotherapy, surgery, hormonal therapy and targeted therapy. They all work differently but a summary of what each treatment involves can be seen below.

Chemotherapy



Chemotherapy uses drugs to kill or slow the growth of cancer cells. The drugs often cause side effects to healthy cells in the body. They can also damage the ovaries and reduce the number of eggs a young woman has.

The effect of chemotherapy on fertility depends on:

- The drugs you are given and how strong they are
- How long you take the drugs
- What other drugs you are given
- Your age
- Your level of fertility before having cancer treatment

Radiotherapy



Radiotherapy uses high-energy rays (like x-rays) to kill or damage cancer cells in the area being treated. These rays can be given externally using a machine or internally by using radioactive implants. Radiotherapy may affect fertility depending on where it is used and how strong it is.

- High doses of radiotherapy to the ovaries could damage the eggs inside and may then lead to early menopause.
- If you have treatment that involves the womb, it could lead to miscarriages, premature births and low-birthweight infants later on.
- If radiotherapy is given to the brain, it could affect the pituitary gland. The pituitary gland may then not be able to produce the hormones that tell the ovaries to use their eggs.

Surgery

In **surgery**, cancer can be taken out of the body during an operation. Sometimes, when cancer is removed it is necessary to take out part of the body where the cancer was growing. If cancer was affecting the ovaries, cervix or womb, young women may have problems with fertility in the future. It is hard to know how the operation will affect your fertility, but this can be influenced by the type of cancer you have.



Hormone therapy

Hormone therapy uses drugs to change how hormones work in the body. This therapy helps reduce the chance that the cancer will return. This treatment can be used to treat a cancer that has returned after treatment or has spread further around the body.



Hormone therapy is given to young women with cancers that are sensitive to or dependent on hormones. The treatment can slow or stop the growth of the cancer cells by:

1. Lowering the number of hormones in your body
2. Influencing the way that cancer cells respond to hormones, to prevent their growth

Some of the hormones that hormone therapy tries to lower are the same ones that are needed for fertility. This means that treatment can affect your ability to fall pregnant. The hormones in hormone therapy can make your periods irregular or make them stop. Your periods may return a few months after you have stopped hormone therapy. If your periods do not return after hormone therapy, you may have started the menopause naturally while on the treatment.

If you have hormone therapy as part of your cancer treatment, you will be advised not to get pregnant during treatment or for a while afterwards.

How cancer treatments affect fertility

Targeted drug therapies

Targeted drug therapies are new types of drugs used to treat cancer. These drugs stimulate the body's immune system, help control the growth of cancer cells and can help a young woman overcome side effects of treatment. As these are newer treatments for cancer, information about the side effects of these drugs are still being recorded, so we are not yet sure what effect they have on fertility. There are many types of targeted drug therapies.



If you have targeted drug therapies as part of your cancer treatment, you will be advised not to get pregnant during treatment or for a while afterwards.

Other cancer treatments

Sometimes **other treatments** may be used to treat cancer, for example:



1. Blood and Marrow Transplantation (BMT): can use chemotherapy, radiotherapy and antibody treatments alongside blood and bone marrow stem cell infusions.
2. Cellular therapies (e.g., CAR T-cell therapy): are often combined with chemotherapy.

If these treatments affect your fertility, the effect is often permanent which means that you will not be able to get pregnant in the future. You will need to have a pregnancy test before you begin these treatments and will be advised not to get pregnant while you are having the treatments.

The following questions may help you talk with your cancer care team about the effect your planned cancer treatment may have on your future fertility:

- How could my planned cancer treatment affect my fertility in the future?
- Could my cancer treatment affect any part of my reproductive system (e.g., womb)?
- Will the side effects of my cancer treatment affect my fertility temporarily or permanently?
- How may my age or other factors affect my fertility?
- When should I talk about fertility preservation and who should I talk to?



Use this space to write down any notes or questions you want to ask about how cancer treatment might affect your fertility:

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Fertility preservation: what are my options?

This section tells you about the fertility preservation options young women with cancer can have before they start having cancer treatment.

You can choose:

1. **No fertility preservation:** so you can start cancer treatment straight away.
2. **Freezing:** is a way of storing eggs, embryos or ovarian tissue.
3. **Ovarian suppression:** may help protect the ovaries during cancer treatment.
4. **Specific surgery:** fertility sparing surgery may be possible for some young women.

Picture 1 below shows the fertility preservation choices young women could make before they begin their cancer treatment. It is important to remember that not all of the procedures are available in every fertility clinic. Some of the choices are newer treatments where data regarding success rates is still being assessed.

Your cancer and fertility care teams will be able to advise you more and will be able to discuss the options that are available to you.

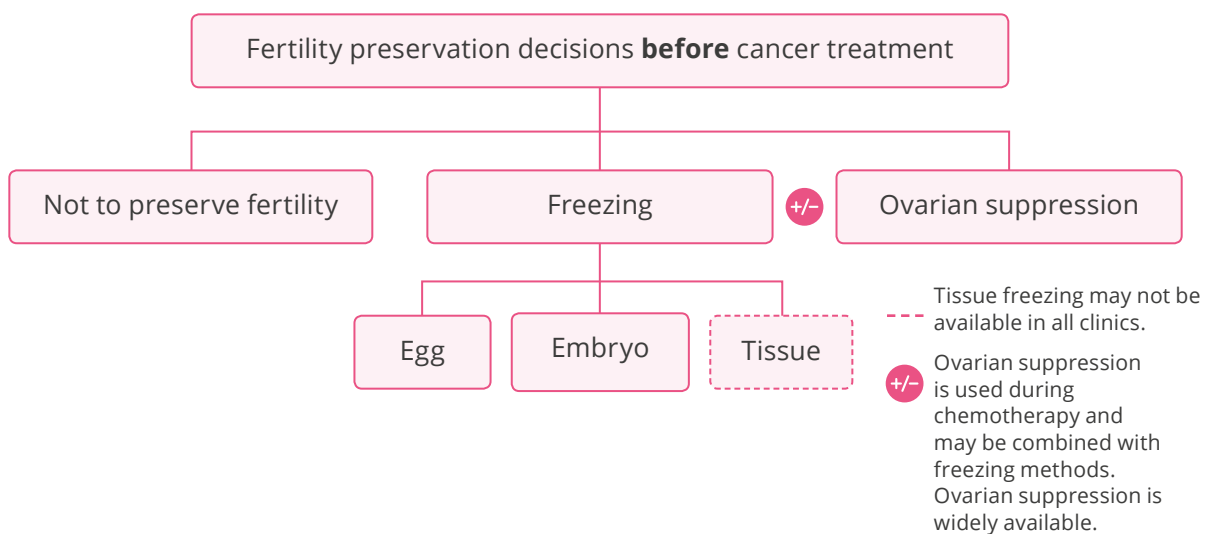
Try to remember...

- Each fertility option has a different level of success.
- No option works 100% of the time.
- The success rates for each option will be different for each young woman.
- None of the options can guarantee you will get pregnant and have a baby after cancer treatment.

This section will now look at each fertility preservation option in more detail.

A summary table comparing the different fertility options is at the back of this booklet on page 29.

Picture 1: Fertility preservation decisions before starting cancer treatment



No fertility preservation

This option means deciding not to have a fertility preservation procedure before starting cancer treatment.

Try to remember...

- Not all young women will want to have treatment to try and preserve their fertility.
- Not all young women will be able to choose a fertility preservation treatment because of their cancer type and stage.

Who is it for?

Young women who:

- Want to 'wait and see' if their fertility comes back naturally after cancer treatment
- Are sure they do not want to have a pregnancy after cancer treatment
- Are sure they have already completed their family
- Do not have fertility preservation options available to them
- Have a fast growing cancer so need to begin (cancer) treatment straight away.

It is advised that young women wait at least two years after finishing their cancer treatment before becoming pregnant. This is because there may be a higher chance that the cancer could return in the first two years after diagnosis.

What does it involve?

There are no extra procedures involved. You will be able to continue with your cancer treatment but it is important that you remember to continue using contraception at this time too.

What is the chance of having a baby after cancer treatment?

The chance of having a baby after cancer treatment depends on how your ovaries have been affected by your cancer treatment. Some young women may get pregnant naturally after cancer treatment without fertility preservation. However, if cancer treatment causes the menopause to start, it could mean that you may not be able to have a natural pregnancy.

Will this option affect the health of the baby?

No, the health of a baby (in the future) will not be affected.

Are there any side effects?

No, there are no fertility treatment side effects with this option.

Will this option delay the start of my cancer treatment?

No, this option will not delay the start of cancer treatment.

You may find it useful to write down what you like about this option and what worries you about this option. These notes may help you talk about this option with your medical team, friends and family:



What I like about this option:

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What worries me about this option:

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Freezing

There are three freezing options that may help preserve a young woman's fertility:

1. Egg freezing
2. Embryo freezing
3. Ovarian tissue freezing

Eggs, embryos and ovarian tissues can be frozen and stored for many years. After cancer treatment has stopped, when it is appropriate, these can then be thawed and used for a pregnancy.

Different methods of freezing eggs, embryos and ovarian tissue can be used. Cryopreservation is a 'slow freezing' method. Vitrification is a newer method of 'fast freezing'. Vitrification has been shown to improve the chance that eggs and embryos will survive the thawing process. This method gives higher success rates amongst pregnancies.

If a young woman has a male partner, they may be able to freeze both eggs and embryos. This could provide more fertility options for them after cancer treatment.

Ovarian tissue freezing is a new method of fertility preservation that would be another option for young women.

Egg freezing

This method involves removing mature eggs from the ovaries and freezing them. This process can be known as 'egg banking'.

When the young woman is ready to become pregnant, the stored eggs are then fertilised with sperm and put back into the womb.



Who is it for?

Young women who want to preserve their fertility and have gone through puberty. They may also:

- Not want to use partner or donor sperm
- Do not want to choose embryo freezing because of their beliefs
- Have time to go through a cycle of fertility treatment before starting cancer treatment

It may NOT be suitable for young women who have cancer in the pelvis because of the chance of spreading the cancer.

What does it involve?

You will need hormone injections to stimulate the ovaries (ovarian stimulation) for about 2 weeks. Eggs are then collected from the ovaries using a fine needle. This is done under sedation and you may be able to go home a few hours later.

This process only involves the young woman, so you do not need partner consent to use these stored eggs in the future. Frozen eggs can be stored for 10 years (and sometimes longer in certain situations).

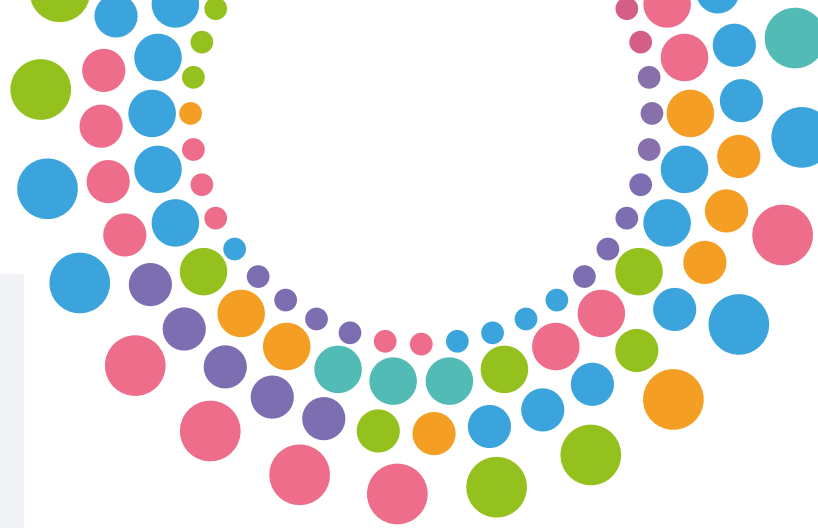
What is the chance of having a baby after egg freezing?

There are not many cancer patients who have used frozen eggs so it is difficult to know how likely it is that egg freezing will result in a successful pregnancy. Most of the data that shows how successful egg freezing can be focuses on young women without cancer that have used their frozen eggs to have a baby.

The chance of having a baby after egg freezing depends on a number of factors including:

- Your age when your eggs are collected (young women who are under 35 years old will have a higher chance).
- The number of eggs collected (young women who have more collected have a higher chance).
- The fertility clinic where egg freezing was carried out.
- Whether or not vitrification was used (vitrification has a higher success rate).

Freezing



Overall, if a young woman under 35 has 10 eggs stored, these will give her a 4 in 10 (40%) chance of having a baby. Some young women may not be able to freeze as many as 10 eggs, which will lower the chances of having a baby. You may also see success rates elsewhere that appear lower. These lower success rates may be based upon one cycle of IVF treatment using fewer frozen eggs.

You can find more information on the Human Fertilisation and Embryology Authority (HFEA) website (www.hfea.go.uk) about the number of average success rates and the number of live births for each licensed fertility clinic.

Will this option affect the health of the baby?

No, data suggests that the health of a baby will not be affected.

Are there any side effects of the fertility treatment used in egg freezing?

The fertility drugs used to stimulate the ovaries can cause side effects (e.g., headaches, mood changes and hot flushes). These drugs can also stimulate the ovaries too much which could lead to a condition called Ovarian Hyper-Stimulation Syndrome (OHSS). Once you begin treatment ask your fertility care team about OHSS symptoms and how to get in touch with them if you need to.

When the ovaries are stimulated to produce lots of eggs, the hormone oestrogen increases. This could be a risk for young women who have an oestrogen sensitive breast cancer. These young women can be given a drug called Letrozole which lowers the oestrogen level in the bloodstream.

When the eggs are collected, there is a chance of bleeding, infection and puncture to the bowel but this is rare.

There may be concern for young women with pelvic cancers because cancer cells could spill from the ovary into the abdomen after egg collection.

Will this option delay the start of my cancer treatment?

It takes approximately 2 weeks from starting ovarian stimulation to the time of egg collection. This may mean some delay in starting your cancer treatment.

Egg freezing may not be an option for young women with certain cancers (e.g., leukaemia) because they may need to begin cancer treatment straight away.

If you experience OHSS, this could delay the start of cancer treatment.

Will this option affect my chances of the cancer coming back?

There is no data to suggest that egg freezing affects the chance of cancers growing or returning.

You may find it helps to write down what you like and what worries you about this option.

These notes could help you talk about whether or not this option is best for you with your cancer care team, fertility care team, partner, family and friends:



What I like about this option:

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What worries me about this option:

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Freezing



Embryo freezing

Embryo Freezing involves taking mature eggs (from a young woman's ovary) and fertilising them with sperm using in-vitro fertilisation (IVF). This is done in a laboratory. The fertilised eggs (called embryos) are then frozen and stored for using in the future. When a young woman is ready to become pregnant the stored embryos are put back into the womb.

Who is it for?

Young women who have gone through puberty and:

- Have time to go through a cycle of fertility treatment before starting cancer treatment
- Have a male partner (because it needs both eggs and sperm to fertilise the egg)

What does it involve?

You will need hormone injections to stimulate the ovaries (ovarian stimulation) for about 2 weeks. Eggs are then collected from the ovaries using a fine needle. This is done under sedation and you may be able to go home a few hours later.

If you are in a relationship and create and store an embryo with your male partner, you will need his consent before the embryos can be used at a later date. This is important, because if you later split up, he may not want you to use the stored embryos.

If you do not have a male partner, donor sperm could be used. If you choose this option, it is important to know that the donor can change their mind, and not allow use of any embryos made using their sperm. Frozen embryos can be stored for 10 years (and sometimes longer in certain situations).

What is the chance of having a baby after embryo freezing?

There are not many cancer patients who have used frozen eggs so it is difficult to know how likely it is that embryo freezing will result in a successful pregnancy.

Most of the data that shows how successful embryo freezing can be focuses on young women without cancer that have used their frozen embryo to have a baby.

The chance of success with embryo freezing depends on how many eggs are obtained, because these are then fertilised to make embryos before being frozen. If a young woman under 35 has ten eggs obtained and fertilised to form embryos, these will give her a 4 in 10 (40%) chance of having a baby. The chance of having a baby after embryo freezing depends on the following:

- Your age when your eggs are collected (young women who are under 35 years old will have a higher chance)
- The number of eggs collected
- The number and quality of embryos frozen
- The health of your partner's sperm
- The fertility clinic where egg freezing was carried out

You can find more information on the HFEA website (www.hfea.gov.uk) about the number of average success rates and the number of live births for each licensed fertility clinic.

Will this option affect the health of the baby?

No, data suggests that the health of a baby will not be affected.

Are there any side effects of the fertility treatment used in embryo freezing?

The fertility drugs used to stimulate the ovaries can cause side effects (e.g., headaches, mood changes and hot flushes). These drugs can also stimulate the ovaries too much which could lead to a condition called OHSS. Once you begin treatment ask your fertility care team about the symptoms of this condition and how to get in touch with them if you need to.

When the ovaries are stimulated to produce lots of eggs, the hormone oestrogen increases. This could be a risk for young women who have an oestrogen sensitive breast cancer. These young women can be given a drug called Letrozole which lowers the oestrogen level in the bloodstream.

When the eggs are collected, there is a chance of bleeding, infection and puncture to the bowel but this is rare.

There may be concern for young women with pelvic cancers because cancer cells could spill from the ovary into the abdomen after egg collection.

Freezing



If more than one embryo is replaced, there is the chance of multiple births (e.g., twins, triplets). All pregnancies have a risk of miscarriage and ectopic pregnancy (a pregnancy outside of the womb).

IVF can be physically and emotionally draining and pregnancy may not happen.

Will this option delay the start of my cancer treatment?

It takes approximately 2 weeks from starting ovarian stimulation to the time of egg collection. This may mean some delay in starting your cancer treatment.

Egg freezing may not be an option for young women with certain cancers (e.g., leukaemia) because they may need to begin cancer treatment immediately.

If you experience OHSS, this could delay the start of cancer treatment.

Will this option affect my chances of the cancer coming back?

There is no data to suggest that egg freezing affects the chance of cancers growing or returning.

You may find it helps to write down what you like and what worries you about this option.

These notes could help you talk about whether or not this option is best for you with your cancer care team, fertility care team, partner, family and friends:



What I like about this option:

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What worries me about this option:

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Ovarian Tissue freezing

Ovarian tissue contains lots of immature eggs and in this procedure, this tissue is removed and then frozen. After a young woman has had cancer treatment, this tissue can be put back into the body to allow the eggs to develop. Tissue can be collected before and during chemotherapy, but it is a newer method of fertility preservation so it is not available in all fertility clinics at the moment.

Who is it for?

Young women who want to preserve their fertility and:

- Not have time to freeze any eggs or embryos
- Are not able to use fertility drugs

After the ovarian tissue is returned to the body, it is sometimes able to restore your normal hormone levels and cycles and could allow young women to fall pregnant naturally.

This method is also suitable for girls who have not reached puberty. Before tissue is replaced it will need to be carefully screened to ensure that the tissue does not contain any cells from the original cancer. This is particularly important for patients who had leukaemia and some forms of lymphoma where cancer cells circulate in the blood.

What does it involve?

You will have keyhole surgery under a general anaesthetic where one ovary or part of an ovary will be removed. This will allow the outer layer of the ovary (where the immature eggs are) to be frozen. You will be able to go home later that day after the procedure.

Ovarian tissue freezing only involves the young woman so you will not need to get your partner or parents' consent to use this tissue in the future. There is no upper limit for how long frozen ovarian tissue can be stored.



Freezing



What is the chance of having a baby after ovarian tissue freezing?

It is difficult to know how likely it is that ovarian tissue freezing will result in a successful pregnancy.

This is a newer treatment so not many young women have used frozen ovarian tissue to try and have a baby. However, the data shows that ovarian tissue freezing will give a young woman a 30 in 100 (30%) chance of having a baby.

For egg and embryo freezing, you can find more information on the HFEA website (www.hfea.gov.uk) about success rates for each licensed fertility clinic. The HFEA do not regulate tissue storage and have no information on tissue storage on their website.

Will this option affect the health of the baby?

No, the data suggests that health of a baby born using frozen ovarian tissue will not be affected.

Are there any side effects of the treatment used in ovarian tissue freezing?

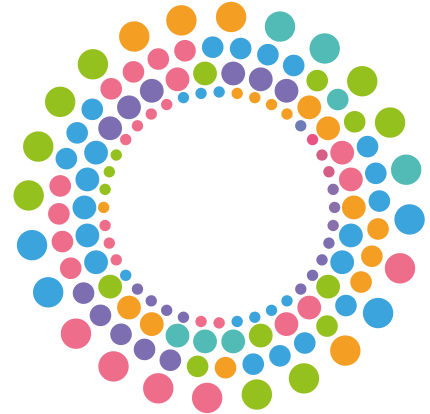
There is a chance that bleeding, infection and damage to the bladder or bowel could take place during the surgery to remove the ovarian tissue.

Will this option delay the start of my cancer treatment?

The procedure is normally carried out during one day (with no overnight stay), so it should not cause any delays to cancer treatment. However, in some cases it can take up to a few days.

Will this option affect my chances of the cancer coming back?

In some types of cancer, such as leukaemia, there may be a chance that ovarian tissue could contain cancer cells. There are no cases where cancer has returned from using ovarian tissue.



You may find it helps to write down what you like and what worries you have about this option.

These notes could help you talk about whether or not this option is best for you with your cancer care team, fertility care team, partner, family and friends:



What I like about this option:

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What worries me about this option:

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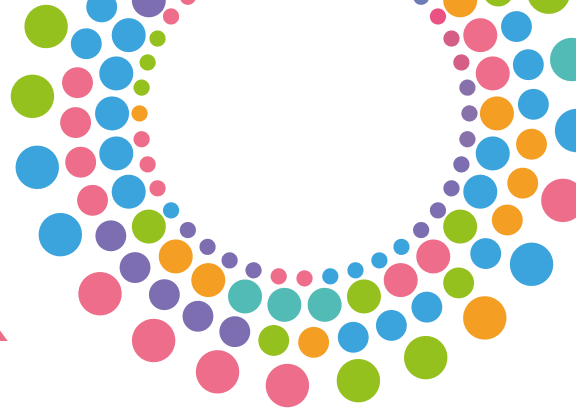
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Ovarian Suppression



Ovarian Suppression tries to protect the ovaries during cancer treatment. It is a hormone treatment that uses hormone injections to temporarily 'turn off' the oestrogen that is made by the ovary. Ovarian suppression can be used before or during chemotherapy. It is not clear whether this option increases the chance of being able to have a baby after finishing cancer treatment.

Who is it for?

Young women who want to preserve their fertility, have gone through puberty and are having chemotherapy.

What does it involve?

You will need monthly injections that stop the hormones that stimulate your ovaries. You may be offered Gonadotrophin-releasing hormone (GnRH) analogue treatment which may help to preserve your fertility.

What is the chance of having a baby after ovarian suppression?

The chance of having a baby in the future depends on how your ovaries have been affected by your cancer treatment.

There is only evidence that ovarian suppression can protect your ovaries against the effects of chemotherapy for young women with breast cancer. It may not be effective for young women with other cancers. It may be less effective than other freezing techniques, so if your future fertility is important to you, where possible, you should not choose ovarian suppression over other freezing techniques.

Will this option affect the health of the baby?

No, the data suggests that the health of a baby born using ovarian suppression will not be affected.

Are there any side effects of the treatment used in ovarian suppression?

This option shuts down the ovaries for a short time. This can cause side effects that are commonly seen in menopause such as hot flushes, mood changes and vaginal dryness.

These symptoms are temporary because ovarian suppression does not lead to permanent menopause.

Will this option delay the start of my cancer treatment?

Hormone injections are mostly given every month and will start about 2 weeks before cancer treatment starts. Once cancer treatment starts, the injections are then given every month for as long as a young woman is having chemotherapy.

Will this option affect my chances of the cancer coming back?

Research has found that ovarian suppression does not affect the chance of the cancer returning.

You may find it helps to write down what you like and what worries you about this option.

These notes could help you talk about whether or not this option is best for you with your cancer care team, fertility care team, partner, family and friends:



What I like about this option:

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What worries me about this option:

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Fertility sparing procedures specific to certain cancers

If you have been diagnosed with cervical cancer, or are being treated with radiotherapy to the pelvis, there may be certain fertility preservation treatments suitable for you. The cancer care team talk with young women about having these procedures as part of their cancer treatment to help preserve your fertility.

Trachelectomy

Trachelectomy is a surgical procedure that removes cancer in the cervix. The cervix, upper part of the vagina and lymph glands (in the pelvis) are removed but the womb is left in place.

If you have been diagnosed with early stage cervical cancer this may be an option for you. Side effects can include bleeding, infection and blood clots in the veins (thrombosis). In surgery, your bowel or bladder could get cut which may result in bladder problems and problems with menstruation. This surgery is a day surgery and does not cause any delay to cancer treatment.

A trachelectomy gives a young woman with early cancer of the cervix the chance of having a baby after cancer treatment. If a young woman becomes pregnant after the surgery, she will have a chance of miscarriage and premature birth. The baby will need to be delivered by Caesarean section (C-section). Research shows that having a trachelectomy does not affect the chance that the cancer will return.



Ovarian transposition

Ovarian transposition is a surgical procedure that moves the ovaries away from the field of radiotherapy treatment. This may be suitable for you if you are receiving radiotherapy to the pelvis.

The side effects can include injury to internal organs. This surgery is a day surgery and it does not delay any cancer treatment. It is not clear whether ovarian transposition will help increase the chance of a young woman subsequently having a baby. Research shows that ovarian transposition does not affect the chance that the cancer will return. It does not protect the ovaries against the effects of chemotherapy.



Ovarian shielding

Ovarian shielding protects the ovaries during radiotherapy. This may be suitable for you if you are receiving radiotherapy to the pelvis. During radiotherapy, a protective cover will be placed on the outside of your body, over the area where your ovaries are.

You will be able to go home straight after your radiation treatment. Ovarian shielding does not delay cancer treatment. The data suggests that ovarian shielding only has a small protective effect during radiotherapy.

The chances of having a child after cancer treatment is unknown. It is not known yet whether ovarian shielding affects the chance of cancer growing or returning. It does not protect the ovaries against the effects of chemotherapy.



Fertility sparing procedures specific to certain cancers

Questions to ask your cancer care team and fertility care team

The following questions below may help you think about what is important to you about these fertility preservation options. Writing down your thoughts will help you talk with your cancer and fertility care teams to help plan your care before you start cancer treatment.

- ? Does my cancer type or cancer treatment affect what fertility preservation option I can have?
- ? Can I check if I am fertile before I start cancer treatment?
- ? Why do I need to make a fertility preservation decision now?
- ? Do I have time to have fertility preservation treatment before starting my cancer treatment?
- ? Is there anything that can be done during my cancer treatment to help protect my fertility?
- ? How long is it safe for me to delay starting cancer treatment?
- ? Will having fertility preservation treatment delay my cancer treatment? If so, what effect could this have on my chance of recovering from cancer?
- ? Will I have to pay for my fertility preservation treatment?
- ? Will I have to pay for storing and using my eggs, embryos or ovarian tissue in the future?



Use this space to write down any notes or questions you want to ask about fertility preservation:

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Financial costs associated with having fertility preservation treatment

NHS funding may be available but the amount available and the criteria for specific treatment varies between different places and Clinical Commissioning Groups (CCGs).

NHS funding may not be available for you if either you or your partner already has a child. If you are not eligible for NHS funding, you may self-fund treatment. Individual funding requests can be made to CCGs in certain situations.

Funding options will be discussed with you during your appointment with your fertility care team. If you are able to get NHS funding at that time, it does not guarantee that you will have NHS funding if or when you decide to use stored frozen ovarian tissue.

For more information about the availability of fertility preservation procedures, please see the HFEA website (www.hfea.gov.uk).

Talking with your fertility team about fertility preservation

The fertility care team carry out procedures known as fertility preservation for young women who are diagnosed with cancer. They can talk with you about your decision to have or not have fertility preservation.

The fertility consultation depends on the clinic that you are attending, your cancer diagnosis and the cancer treatment you have planned. The fertility care team will look at your medical history to make sure that it is appropriate for you to have fertility preservation treatment. They will explain what is involved, success rates and possible side effects. If you need further tests, these will be done before fertility treatment starts. You will be able to discuss the different fertility preservation options available at the clinic.

If you choose fertility preservation treatment different tests including blood tests to measure hormone levels and other screening tests will be carried out. The fertility care team will also discuss your consenting to treatment as recommended by the HEFA.

Your cancer care team can refer you to a fertility clinic and ask them to fit you in as soon as possible to avoid your cancer treatment being delayed.

If you would like to be referred to a fertility clinic there are some things to check. Tick one answer for each statement.



Tick one box for each statement

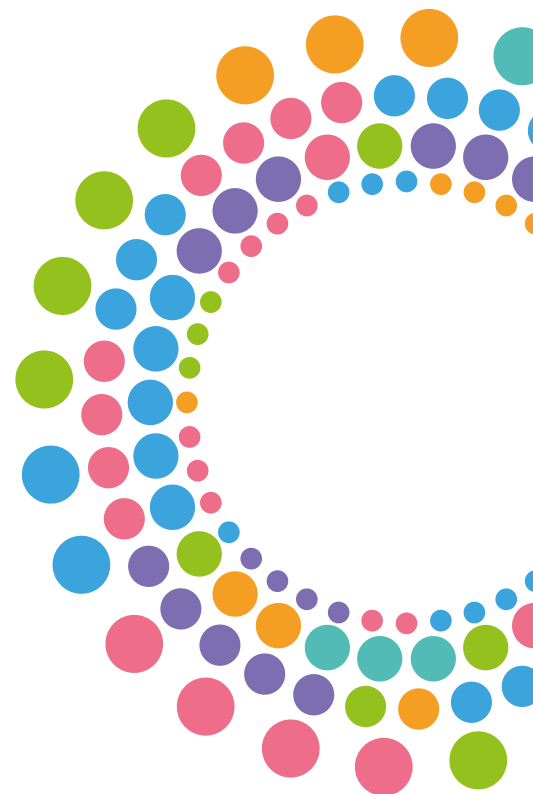
Has a member of my cancer care team referred me to a fertility clinic?

No

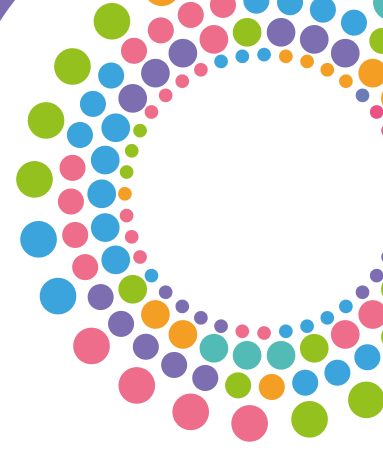
Yes

Have I received an appointment to see the fertility care team?

If your answer is **no** or **unsure**, you may want to ask your cancer care team to contact the fertility clinic for you as soon as possible. You may need to ask questions at the fertility clinic. There are some questions on the next page which might help you.



Talking with your fertility team about fertility preservation



Questions to ask your fertility care team

Here are some questions which may help you as you get ready for your consultation:

- ? How long will fertility preservation take?
- ? How long might my cancer treatment be delayed?
- ? What are my chances of being able to have my own children in the future?
- ? Would any fertility preservation option affect the chances of the cancer coming back?



Use this space to write down any notes and questions you want to ask about being referred for fertility preservation:

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Talking about the fertility preservation decision with others

Some young women find that talking to others about their cancer diagnosis and fertility preservation is helpful.

Here are some things you may want to talk about:

- Making difficult decisions.
- Expressing your feelings.
- How to manage your feelings.
- The effects of cancer and fertility on your relationships.
- Anxiety and stress.
- How to cope with your cancer and fertility treatments

Finding the best support for you can mean that you are able to manage some of these emotional challenges. You can choose different ways to feel supported.

These could include:

- Finding out about all the options available.
- Writing down your thoughts and reasons for your decisions.
- Thinking about who you want to help you with your decision making. It could be your partner, family, friends, a nurse or doctor - or someone else.
- Talking with a counsellor, either on your own or with someone else. You may find counsellors in the cancer and fertility clinics. Some other counselling services are listed on page 28.
- Talking with other people who have had similar experiences to you. Some support organisations are listed on page 28.
- Sometimes you may not want to talk about cancer and fertility. It's fine to not want to talk about it and fine to tell people. Maybe say something like "I know you're just asking because you care but, just now, I'd really like to talk about what I watched on TV last night."

Making my fertility preservation decision before starting cancer treatment

This section of the booklet aims to help you decide if you want to:

- Have fertility preservation before starting cancer treatment,
- Start cancer treatment without having fertility preservation treatment.

Some young women will know for certain whether they want to have fertility preservation or not. Others will find it difficult to decide. There is no 'right' or 'wrong' decision. The decision depends on what is most important to you right now and the plans you may have for your future.

Deciding to have, or not to have, fertility preservation before cancer treatment

To help you think about what is important to you now, look at the statements in the table below. There are five responses for each statement. Tick one response for each statement.

You may find it helpful to write down the reasons for your answers in the spaces below each statement.

You may also find it helpful to complete this with your cancer care team and fertility care team, partner, family and friends.

What matters most to you



Tick one box for each statement	Most important	Important	Neutral	Unimportant	Not important at all
Starting cancer treatment straight away	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wanting to have my own biological child after my cancer treatment has been completed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Delaying the start of cancer treatment to have fertility preservation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Taking steps to preserve my fertility before cancer treatment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Waiting to see if my fertility comes back naturally after completing cancer treatment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Making my fertility preservation decision before starting cancer treatment

Deciding which fertility preservation option is best for me

In the previous sections, the fertility preservation decisions were described. These are:

- No fertility preservation
- Freezing
- Ovarian suppression

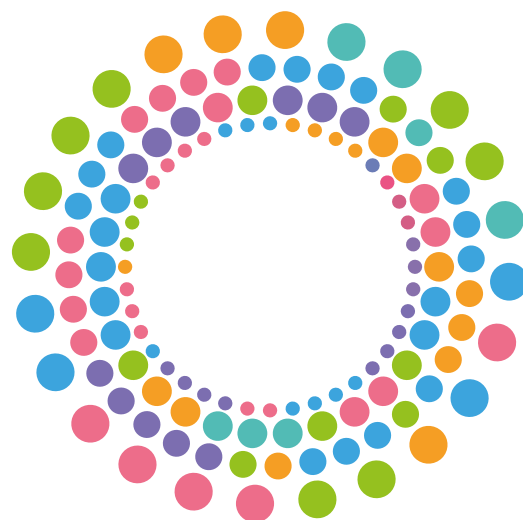
The summary table at the back of booklet compares the different fertility preservation options. It can be found on page 29.

Below is a list of the different fertility preservation options. Tick one response for each option.

Completing this task may help you think about which fertility preservation option best suits you and your lifestyle at this time. It might be helpful to talk about your choices with your cancer care team and fertility care team, partner, family and friends.

“I feel happy with the decision I’ve made. I obviously have ‘what ifs’ in the back of my head if I chose a different one... that’s just because any decision you make you have a ‘what if I chose a different option?’”

A 23 year old young woman with ovarian cancer

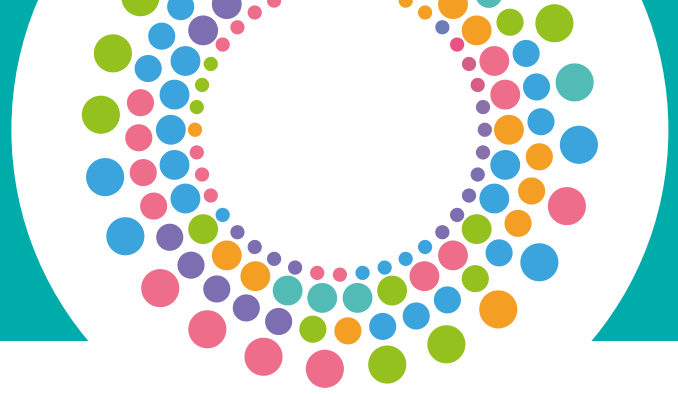


How likely are you to consider each of these fertility preservation treatment options?



Tick one box for each statement	Most important	Important	Neutral	Unimportant	Not important at all
No fertility preservation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Egg freezing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Embryo freezing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tissue freezing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ovarian suppression	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other fertility decisions to consider



The focus of this booklet so far has been helping you to make the right fertility preservation decisions for you **before** starting cancer treatment. This section provides some more information about the other fertility decisions young women may have to make **during** and **after** cancer treatment.

During cancer treatment:

These decisions may include what type of contraceptive option to use.

After cancer treatment and follow-up:

These decisions may include what type of contraceptive to use, what methods of fertility testing to have and planning for a future family.

Contraception **during** cancer treatment

Young women are strongly advised not to get pregnant whilst having cancer treatment. This is because cancer treatments can damage an unborn baby. Even if your periods stop during treatment, you can still become pregnant.

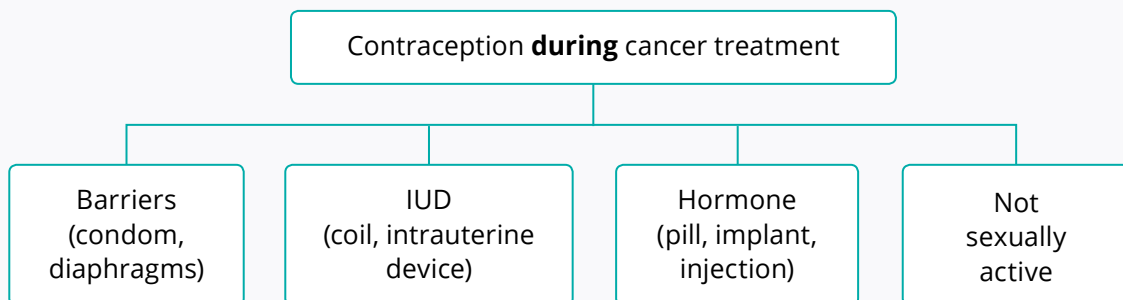
If you are sexually active you should use a reliable contraceptive method throughout your cancer treatment.

Picture 2 below shows the different types of contraception you should consider.

If you are having hormone treatments it is recommended that you use non-hormonal methods of contraception. These include condoms, female condoms (Femidoms) and diaphragms. Young women with hormone sensitive cancers are not advised to take the contraceptive pill as the hormones in the pill could stimulate any remaining cancer cells.

If you discuss contraception with your cancer care team they may refer you to a family planning clinic or your GP who will be able to help you further.

Picture 2: Contraception **during** cancer treatment



Other fertility decisions to consider

Here are some questions which may help you talk with your cancer care team or GP about contraception:

The following questions may help you talk with your cancer care team or GP about contraception.

- ? What contraceptive would be best for me during cancer treatment?
- ? How long do I need to use this contraceptive for?
- ? Do I need to use non-hormonal methods of contraception for my cancer type?
- ? If I am not having a period during my cancer treatment, should I still use contraceptives?
- ? Will it affect me or my unborn baby if I choose not to use contraception and become pregnant during my cancer treatment?



Use this space to write down any notes and questions you want to ask about contraception during cancer treatment:

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Family planning decisions after cancer treatment

You may find that making decisions about pregnancy after your cancer diagnosis is difficult. Your decisions about fertility management will be made on what best suits your life. These include having tests to check fertility, choosing a contraceptive method and planning your future family. This is shown in picture 3 on the next page.

It is difficult to predict how your fertility will be affected by cancer treatment. The fertility care team can check your fertility through tests including blood tests to check your hormone levels or an ultrasound scan of your ovaries. You can ask your GP or cancer care team to refer you to a fertility clinic for this support.

Your fertility may return naturally after cancer treatment. Even if your periods have not started again, you may still be producing eggs and could become pregnant. Your GP or cancer care team can advise you on the options and the best type of contraception for you. You may choose not to have any children but if you do want a family it is advised that you wait for two years after completing your cancer treatment before trying for a baby.

Data does not suggest that pregnancy affects the chances of a cancer coming back. Data does not suggest that the health of children born after cancer treatment is affected. You can talk with your cancer care team if you are thinking about getting pregnant.

Other fertility decisions to consider

Not all young women who have cancer treatment will have a fertility problem, in fact **most young women who want to have a baby after cancer treatment are able to.**

Occasionally a young woman may find herself unable to have children which can be upsetting and difficult to come to terms with. Support and help is offered by your fertility care team. They can offer emotional support and information on other options. These include surrogacy, adoption and fostering. They can also advise on methods of assisted pregnancies such as donor eggs and embryos or using your own saved eggs, embryos and ovarian tissue.

The HEFA website www.hfea.gov.uk has more information about egg or embryo donation and surrogacy.

The organisations listed on page 28 of this booklet include information and support for people interested in fostering and adoption.

Here are some questions which may help you talk with your cancer care team or GP about having a baby after cancer treatment:

- ? How will I know if I am fertile after cancer treatment?
- ? How long before I know if I am fertile?
- ? Are there any tests that I can take to check if I am still fertile after cancer treatment?
- ? If I became pregnant would the cancer come back?
- ? If I can still have a baby, how long after treatment should I wait?
- ? If I become pregnant after cancer treatment, will my child have a higher chance of getting cancer?
- ? If I didn't have fertility preservation before cancer treatment, do I still have options?



Use this space to write down any notes and questions you want to ask about contraception during cancer treatment:

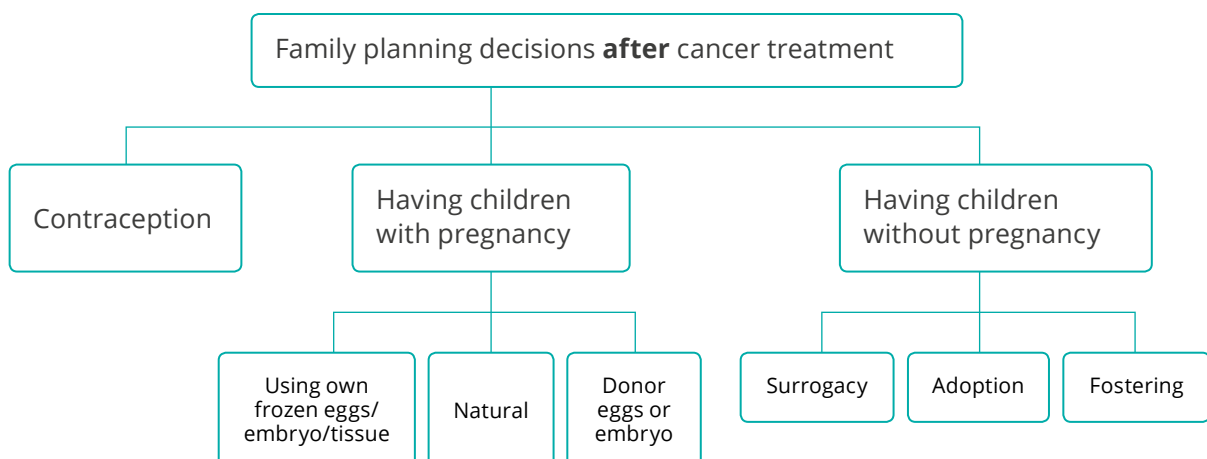
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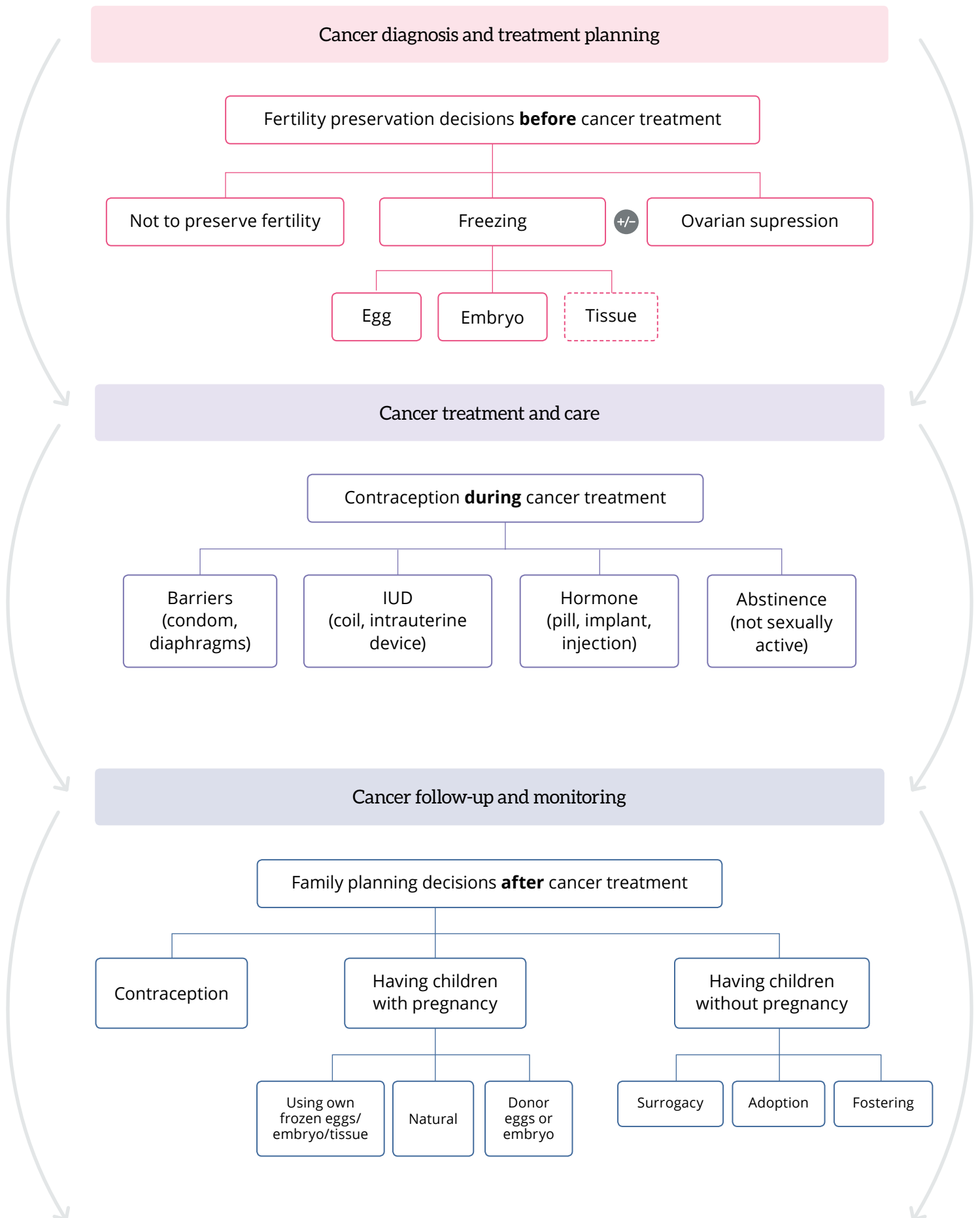
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Picture 3: Family planning decisions **after** cancer treatment



Picture 4: Linking fertility options for young women **before, during** and **after** cancer treatment



Glossary

Abdomen - (tummy or belly) is the area below the chest and above the pelvis. It contains several organs such as the kidneys, liver and the stomach.

Adoption - To take on the legal responsibilities as parent of a child (that is not one's biological child).

Anastrozole (Arimidex) - Works by lowering oestrogen levels in postmenopausal women. This may slow the growth of certain types of breast tumours that need oestrogen to grow in the body.

Antipsychotic medication - A class of medicines used to treat psychosis and other mental and emotional conditions.

Assisted reproductive technologies (ART) - A group of procedures which help couples who are infertile to have a baby.

Blood Cancers - the name given to a group of cancers that develop when cells in the blood are not made properly. For example, leukaemia and lymphoma.

Brachytherapy - The treatment of cancer, by the insertion of radioactive implants directly into the tissue.

Breast cancer - A group of cancer cells (malignant tumour) that starts in the cells of the breast.

Caesarean section - A surgical operation for delivering a child by cutting through the wall of the mother's abdomen.

Cancer - A disease caused by an uncontrolled division of abnormal cells in a part of the body.

Cancer Growth Inhibitors - In order to grow and divide, cancer cells 'communicate' with each other using chemical signals. Cancer growth inhibitors are drugs that interfere with this process and so affect the cancer's ability to develop.

Cervical cancer - A type of cancer that occurs in the cells of the cervix - the lower part of the uterus that connects to the vagina

Cervix - The narrow neck-like passage forming the lower end of the womb.

Chemotherapy - The treatment of disease, especially cancer, using drugs that are destructive to malignant cells and tissues.

Clinical Commissioning Groups (CCG) - National Health Service (NHS) organisations set up by the Health and Social Care Act 2012 to organise the delivery of NHS services in England.

Clinical trial - A scientific test looking at how effective and safe a treatment agent (for example, medication) is.

Contraception - The use of different devices, sexual practices, techniques, chemicals, drugs or surgical procedures to purposely try to prevent pregnancy.

Cortex - Outer layer (e.g. of the ovary).

Cryopreservation - A method of preserving eggs, embryos or tissue by slow freezing at very low temperatures.

Donor - The process when a fertile person provides (donates) one or several eggs/sperm to an infertile person.

Ectopic - An ectopic pregnancy is when a fertilised egg implants itself outside of the womb. This may be in one of the fallopian tubes.

Egg - A cell that is produced by the female reproductive organs and that combines with the males sperm in reproduction.

Egg freezing - A method where eggs are harvested from your ovaries, frozen unfertilised and stored for later use. This is also known as mature oocyte cryopreservation.

Embryo freezing - The process of preserving an embryo at below freezing (lower than zero) temperatures and stored for later use.

Endometriosis - A condition where tissue that behaves like the lining of the womb (the endometrium) is found outside the womb.

Exemestane (Aromasin) - A type of hormone therapy drug called an aromatase inhibitor and is used to treat breast cancer. It is only suitable for women who have had their menopause.

Fallopian tubes - There are two fallopian tubes that transport the egg from the ovary to the womb (uterus).

Female reproductive system - Internal reproductive organs of the females, including the ovaries, fallopian tubes, womb (uterus) and vagina.

Fertility - Being able to have children.

Fibroids - Non-cancerous growths that develop in or around the womb.

Follicles - A small fluid filled sac in the ovaries that contains eggs. This is where eggs are formed and grow in size.

Fostering - To take care of a child. This may be for a limited time, without being the child's legal parent.

General anaesthetic - A combination of medicines to send you to sleep, so you're not aware of the surgery and do not move or feel pain while it is carried out.

Gonadotropin releasing hormone (GnRH) - A hormone triggers the brain to release other hormones that signal the ovaries to develop and release eggs.

Glossary

Goserelin (Zoladex) - Zoladex is a brand name of medicines used in women to treat breast cancer or endometriosis. Goserelin over stimulates the body's own production of certain hormones, which causes production to shut down temporarily.

Gynaecological cancer - Cancer of the female reproductive tract, including the cervix, endometrium, fallopian tubes, ovaries, womb (uterus), and vagina.

HER-2 (human epidermal growth factor) is a protein that can affect the growth of some cancer cells. When there are higher levels of the HER-2 protein in a breast cancer, it is called HER2 positive breast cancer.

Hormone receptors - Can be 'positive' or 'negative' and describes whether the breast cancer will be stimulated to grow by oestrogen and/or progesterone.

Hormone sensitive - Certain cancers are called hormone sensitive or hormone dependent. Hormone therapy uses drugs that either stop the body producing hormones or prevent hormones from making the cancer cells grow and divide. Cancers that can be hormone sensitive include breast, prostate, womb and kidney cancers.

Hormone therapy - To slow or stop the growth of certain cancers (such as prostate and breast cancer). Hormones or other drugs may be given to block the body's natural hormones.

Human Fertilisation and Embryology Authority (HFEA) - The UK's independent regulator overseeing the use of gametes (eggs and sperm) and embryos in fertility treatment and research.

Hysterectomy - A surgical procedure to remove the womb (uterus). You'll no longer be able to get pregnant after the operation. If you haven't already gone through the menopause, you'll no longer have periods, regardless of your age.

Immature eggs - this is the name for the eggs in the ovaries that have not grown and developed.

Infertility - Not being able to get pregnant (conceive) naturally.

Intrauterine contraceptive device (IUD) - A device inserted into the womb (uterus) to prevent pregnancy (conception). The IUD can be a coil, loop, triangle, or T in shape made of plastic or metal.

In vitro fertilisation (IVF) - Fertilisation of an egg outside a woman's body by the addition of sperm to produce an embryo.

Laparoscopic (keyhole) surgery - A surgical procedure that allows a surgeon to enter the inside of the abdomen without having to make large cuts in the skin.

Letrozole (Femara) - A type of hormone therapy drug used to treat breast cancer in women who have had their menopause.

Leukaemia - Cancer of the blood cells.

Leuprorelin (Prostap) - Leuprorelin (Prostap) belongs to group of medicines called 'LHRH agonists'. These work by reducing hormone levels in the ovaries. It is given as an injection every one to three months.

Live birth - A birth at which a child is born alive.

Lymph gland - Lymph nodes are small, bean-shaped glands throughout the body. They are part of the lymph system, which carries fluid (lymph fluid), nutrients, and waste material between the body tissues and the bloodstream. The lymph system is an important part of the immune system, the body's defense system against disease.

Lymphoma - A form of cancer that affects the immune system.

Mature eggs - There are tiny follicles inside the ovaries. Each ovarian follicle contains a single immature egg cell. Once a month, a few of the follicles will grow and develop the egg inside (mature) and one of the ovaries will release a single egg.

Menopause - The time in a woman's life when the menstrual cycle (periods) ends.

Menstruation/periods - The monthly cycle of changes in the ovaries and the lining of the womb (uterus), starting with the preparation of an egg for fertilisation. When the follicle of the prepared egg in the ovary breaks, it is released for fertilisation and ovulation occurs.

Miscarriage - If a pregnancy ends before the 24th week, it is known as a miscarriage.

National Institute for Health and Care Excellence (NICE) - Evidence-based guidance, advice and information services for health, public health and social care professionals.

Non-steroidal anti-inflammatory drugs (NSAIDs) - Medications mostly used to relieve pain, lower inflammation, and bring down a high temperature (fever), e.g. ibuprofen.

Oestrogen - A general term for one type of female sex hormone that is secreted by the ovary and responsible for typical female sexual characteristics.

Oophorectomy - Surgical removal of one or both ovaries.

Ovarian hyper-stimulation syndrome (OHSS) - A serious side effect of fertility treatment, which may happen when having in vitro fertilisation.

Ovarian reserve - The number of eggs a woman has at any one point in time.

Glossary

Ovarian shielding - A procedure done during radiation therapy in which a protective cover is placed on the outside of the body, over the area of the ovaries and other parts of the female reproductive system, to prevent damage from radiation therapy. This is a type of fertility preservation.

Ovarian stimulation - Hormone injections to temporarily raise the activity of the ovaries.

Ovarian suppression - The medical terms used to prevent the ovaries from producing oestrogen, either temporarily or permanently.

Ovarian transposition - A surgical procedure used to protect ovarian function before delivery of radiation therapy. It is performed in patients whose treatment includes pelvic radiotherapy as a part of management for Hodgkin's disease and other gynaecologic cancers.

Ovarian tissue freezing - A method of fertility preservation in which a whole ovary or part of an ovary is taken out of the body, generally by laparoscopic (keyhole) surgery. The outer layer of the ovary, which contains all the immature eggs, is then frozen and stored for future use.

Ovaries - A female reproductive organ in which eggs are produced.

Ovulation - A part of the female menstrual cycle whereby a mature ovarian follicle (part of the ovary) releases an egg. It is during this process that the egg travels down the fallopian tube where it may be met by a sperm and become fertilised.

Parametrial tissue - The fibrous tissue that separates the supravaginal portion of the cervix from the bladder.

Pelvic cancer - a cancer that involves the pelvic region e.g. cervical cancer.

Pelvic inflammatory disease - An infection of the female reproductive organs. It may occur when sexually transmitted bacteria spread from your vagina to your womb (uterus), fallopian tubes or ovaries.

Pertuzumab (Perjeta) - a monoclonal antibody mostly used to treat some women with breast cancer.

Pituitary gland - The pituitary gland is a tiny organ, the size of a pea, found at the base of the brain. As the 'master gland' of the body, it makes or stores many different hormones.

Polycystic ovary syndrome (PCOS) - A common endocrine system disorder among women of reproductive age, which may have enlarged ovaries that contain small collections of fluid, called follicles.

Postpubertal - Occurring after puberty.

Pregnancy - The state of carrying a developing embryo or baby within the female body.

Puberty - The age at or period during which the body of a boy or girl matures and becomes capable of reproducing.

Radiotherapy - The treatment of disease, especially cancer, using X-rays or similar forms of radiation.

Recreational drugs - Recreational drugs are taken by people to alter their mood. Alcohol and tobacco are legal recreational drugs; heroin and cocaine are illegal recreational drugs.

Sarcoma - Cancerous (malignant) tumours of connective tissues.

Sedation - A combination of medicines to help you relax.

Sperm - A cell that is produced by the male reproductive organs and that combines with the female's egg in reproduction.

Stimulate - Drugs are used to stimulate development of multiple mature follicles and eggs in order to raise pregnancy rates with various infertility treatments.

Surrogacy - The practice by which a woman (called a surrogate mother) becomes pregnant and gives birth to a baby in order to give it to someone who cannot have children.

Tamoxifen - A drug often used as a hormone therapy treatment of breast cancer in women whose tumours are oestrogen receptor positive.

Targeted therapy - A type of treatment that uses drugs or other substances to identify and attack specific types of cancer cells with less harm to normal cells.

Thawed - To change from a frozen solid to a liquid by gradual warming.

Thrombosis - When a blood clot forms inside a blood vessel, blocking the flow of blood through the circulatory system.

Trachelectomy - A surgical removal of the uterine cervix. As the uterine body is preserved, this type of surgery is a fertility preserving procedure, and applicable in selected younger women with early cervical cancer.

Trastuzumab (Herceptin) - Is used to treat some types of breast cancer and stomach cancers following surgery and/or radiotherapy and chemotherapy to lower the chance of the cancer recurring.

Uterus (see womb) - The organ in the lower body of a woman where the baby is conceived and carried before the baby is born.

Vagina - The muscular tube leading from the external genitals to the cervix of the womb (uterus) in women.

Vitrification - A method of preserving eggs, embryos or tissue by fast freezing at very low temperatures.

Womb (see uterus) - The organ in the lower body of a woman where the baby is conceived and carried before the baby is born.

Other information and useful contacts

Cancer support

Macmillan Cancer Support

Helpline: 0808 808 0000

www.macmillan.org.uk

Yorkshire Cancer Research

Tel: 01423 501 269

www.yorkshirecancerresearch.org.uk

CLIC Sargent (Young Lives vs Cancer)

Helpline: 0300 330 0803

www.clicsargent.org.uk

Teenage Cancer Trust

Tel: 020 7612 0370

www.teenagecancertrust.org

Teenage and Young Adults with Cancer

Tel: 0333 050 2589

www.tyac.org.uk

JTV (cancer support)

www.jtvcancersupport.com

Shine Cancer Support

Tel: 07804 479413

www.shinecancersupport.org

Breast Cancer Now

Helpline: 0808 800 6000

www.breastcancer.org.uk

Target Ovarian Cancer

Helpline: 020 7923 5475

www.targetovariancancer.org.uk

Blood Cancer UK

Helpline: 0808 2080 888

www.bloodcancer.org.uk

Children's Cancer and Leukaemia Group

Tel: 0333 050 7654

www.cclg.org.uk

Lymphoma Action

Helpline: 0808 808 5555

www.lymphoma-action.org.uk

The Brain Tumour Charity

Helpline: 0808 800 0004

thebraintumourcharity.org

Fertility organisations

Fertility Network UK

Helpline: 0121 323 5025

www.fertilitynetworkuk.org

Future Fertility Programme Oxford

Tel: 01865 220508

www.ouh.nhs.uk/future-fertility

The Daisy Network

www.daisynetwork.org.uk

Fertility Friends

www.fertilityfriends.co.uk

British Fertility Society

www.britishfertilitysociety.org.uk

Donor Conception Network

www.dcnetwork.org

Human Fertilisation and Embryology Authority

Tel: 020 7291 8200

www.hfea.gov.uk

Counselling and emotional support

Young Minds

www.youngminds.org.uk

Childline

Helpline: 0800 1111

www.childline.org.uk

Kooth

www.kooth.com

Youth Access

Tel: 020 8772 9900

www.youthaccess.org.uk

British Infertility Counselling Association

www.bica.net

British Association for Counselling and Psychotherapy (BACP)

Tel: 01455 883 300

www.bacp.co.uk/about-therapy/how-to-find-a-therapist

UK Council for Psychotherapy (UKCP)

Tel: 020 7014 9955

www.psychotherapy.org.uk

Adoption and fostering

Adoption UK

Helpline: 0300 666 0006

www.adoptionuk.org

Coram

Tel: 020 7520 0300

www.corambaaf.org.uk

Guidelines to deliver services

National Institute for Health and Care Excellence (NICE)

www.nice.org.uk

Guidance:

- NICE (2013) Fertility problems: assessment and treatment [CG156]

- NICE (2014) Cancer services for children and young adults: fertility support [QS55]

Pathways:

- NICE (2016) Cryopreservation to preserve fertility in people diagnosed with cancer

Human Tissue Authority

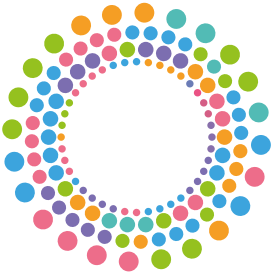
www.hta.gov.uk

Human Fertilisation and Embryology Authority (HFEA)

www.hfea.gov.uk

Table 1: Summary of the fertility preservation options

	No Fertility Preservation	Egg Freezing	Embryo Freezing	Ovarian Tissue Freezing	Ovarian Suppression
Who it is for	Young women who want to wait and see; already completed family; do not wish to have a pregnancy after cancer treatment; need to start cancer treatment straight away; do not have fertility preservation options available to them.	Young women who do not have a partner; do not want to use partner or donor sperm; do not choose embryo freezing because of their beliefs; have time to go through a cycle of fertility treatment before starting cancer treatment.	Young women who have time to go through a cycle of fertility treatment before starting cancer treatment; young women with a male partner as both eggs and sperm are needed for fertilisation.	Young women who do not have time to freeze embryos or eggs; who cannot use fertility drugs; girls who have not reached puberty.	Young women undergoing chemotherapy; girls who have reached puberty.
Chance of having a baby	Variable. Depends on how your ovaries have been affected by your cancer treatment.	Variable. Young women under 35 who store 10 eggs have approximately a 40% chance of having a baby. Women over 35 years old will have a lower chance.	Variable. Young women under 35 who store 10 eggs have approximately a 40% chance of having a baby. Women over 35 years old will have a lower chance.	Newer method of fertility preservation. Live birth rates of about 30 in 100 (30%) worldwide.	It is unclear if this method makes it more likely that you will be able to have a baby after treatment.
Effect on the health of baby	No effect.	No data to suggest health of baby will be affected.	No data to suggest health of baby will be affected.	No data to suggest health of baby will be affected.	No data to suggest health of baby will be affected.
Fertility treatment side effects	No fertility treatment side effects.	Headaches, mood changes, hot flushes, and irritation of the skin; levels of the hormone oestrogen go up (not safe for women who have an oestrogen sensitive breast cancer); chance of infection or bleeding; damage to other pelvic structures (not safe for women with pelvic cancer).	Headaches, mood changes, hot flushes, and irritation of the skin; levels of the hormone oestrogen go up (not safe for women who have an oestrogen sensitive breast cancer); chance of infection or bleeding; damage to other pelvic structures (not safe for women with pelvic cancer).	Involves surgery, so damage to bladder or bowel; chance of infection or bleeding. A risk that the tissue could contain cancer cells. Prior to use of the tissue it will be screened for cancer cells and so may not be able to be autotransplanted.	Hot flushes; mood changes; difficulty sleeping; vaginal dryness.
Delay to start cancer treatment	No delay.	Around three weeks.	Around three weeks.	Up to a few days.	No delay.
Effect on the cancer coming back	No effect.	No data to suggest this will affect the chances of the cancer coming back.	No data to suggest this will affect the chances of the cancer coming back.	No data to suggest this will affect the chances of the cancer coming back.	No effect.



For more information visit:
www.leedsbeckett.ac.uk/cancerfertilityandme

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For a full list of the sources we used to research and develop this booklet please go to:
www.leedsbeckett.ac.uk/cancerfertilityandme

For an online version of this booklet please go to:
www.cancerfertilityandme.org.uk