PATHWAY TO A CHILD

INSIDE

Becoming fertility fit

Understanding the fertility language

Your step-by-step guide through fertility treatment

FEBRUARY 2024

Download our patient app

salve

FERTILITY associates | a better understanding

TE RAUHANGA O TE WHARETANGATA

PATHWAY TO A CHILD

CONTACT DETAILS
Website www.fertilityassociates.co.nz
Phone 0800 10 28 28

Clinics
Auckland 09 520 9520
Level 3, 7 Ellerslie Racecourse Drive, Remuera
Email faa@fa.co.nz

North Shore 09 475 0310
Level 1, 119 Apollo Drive, Albany
Email fas@fa.co.nz

Hamilton 07 839 2603
Level 2, 62 Tristram Street, Hamilton
Email fah@fa.co.nz

Wellington 04 384 8401
Level 11, 155 The Terrace, RNZ House
Email faw@fa.co.nz

Christchurch 03 375 4000
Level 1, Hiatt Chambers, 249 Papanui Road, Christchurch
Email fac@fa.co.nz

Dunedin 03 955 4546
Level 4, Burns House, 10 George Street, Dunedin
Email fad@fa.co.nz

Our doctors also consult in Whangarei, East Auckland, West Auckland, Karaka, Tauranga, Whanganui, Hastings, New Plymouth, Gisborne, Hawke's Bay, Palmerston North, Lower Hutt and Nelson.

Editor
Alannah Hunter

Certification NZS 8181-2007: Fertility Services
AS/NZS ISO9001 2015
RTAC Licensed

REF 3188.2 – 10/2022

Welcome

WELCOME to our magazine Pathway to a child.

We have called this magazine 'Pathway to a child ' because fertility treatment is often a journey rather than a single step – although an increasing number of people do become pregnant on their first step.

In creating Pathway to a child we have taken all the information we have compiled over the past 35 years and put it together in a way that is easy to read and, we hope, easy to use. The magazine not only gives you specific information about a particular treatment when you need it, but also shows the various fertility journeys. Like any magazine, you may not read it all at once. There are parts you'll want to read straight away, parts you'll want to come back to and parts that won't apply to you. Each type of treatment has its own section of the magazine.

Inside you will also find stories from patients who have experienced infertility and are happy to share their insights with you. Each has taken a different path through treatment – some have been successful while others have not. Their stories illustrate that there are many ways to make a family and sometimes several paths to the same destination. They also demonstrate the wisdom and self-awareness that often accompany the fertility journey itself.

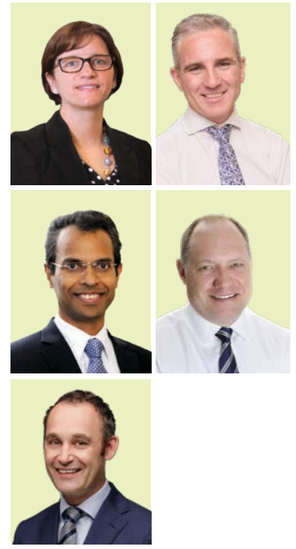
The fertility journey is not always easy and for some people it is a long and incredibly emotional road. We'll endeavour to support you at every step, particularly when things don't work out as expected. This magazine, along with our website and our new patient app Salve, is only part of the story – our staff are your most valuable resource. They are always willing to help with information and support. No question is too trivial, no concern is too insignificant.

You may not have realised it, but many of the people who work at Fertility Associates have experienced difficulties themselves in their quest to start a family. This makes us rather unique among health professionals and gives us a better understanding of what you are going through.

You can meet your team on our website – www.fertilityassociates.co.nz under the 'About us' section. Thank you for trusting Fertility Associates to help you on your pathway towards having a child.

Best wishes

Simon, VP, Andrew, Sarah & Simon



Clockwise from above: Drs Sarah Wakeman, Andrew Murray, Simon Kelly, Simon McDowell and VP Singh

Dr Simon Kelly
Medical Director
Auckland

Dr VP Singh
Medical Director
Hamilton

Dr Andrew Murray
Medical Director
(Group)

Dr Sarah Wakeman
Medical Director
Christchurch

Dr Simon McDowell
Medical Director
Wellington

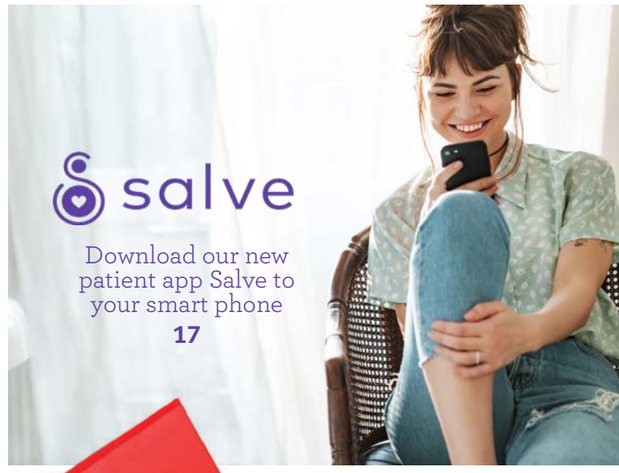
Lifestyle and nutrition tips
31

Your action plan for IVF
38

Contents

Step-by-step through IVF 80

77



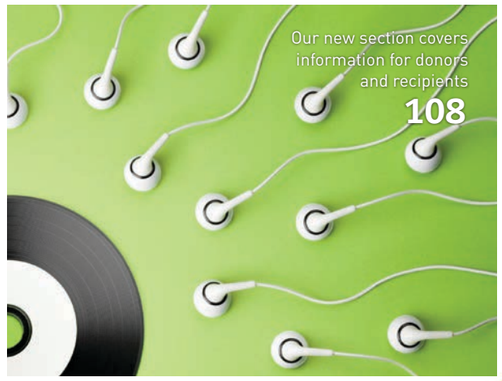
IN MY OWN WORDS
Our patients tell their stories

Just one beautiful child
61

STARTING OFF

NON-IVF TREATMENT

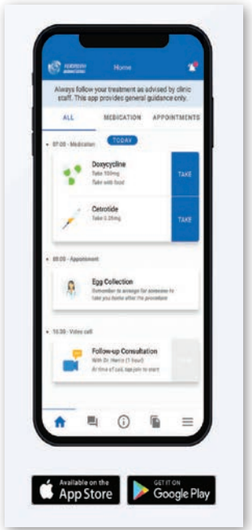
IVF



Finding the information you want

THERE IS an overwhelming amount of information about fertility on the web and in books. Where do you start and what is reliable?

- This magazine, sized for computers and mobiles,https://www.fertilityassociates.co.nz/pathway-to-a-child-booklet/
- Our website, www.fa.co.nz or www.fertilityassociates.co.nz
- Our online nurse chat, on the home page of our website.
- Our Facebook page, www.facebook.com/fertility.associates.nz
- Links to other sites on our website.
- Our Salve app gives you information step by step as you go through treatment
- New Zealand's own consumer organisation, Fertility NZ, which has a range of brochures and videos, people's stories, a regular newsletter, a calendar of events throughout New Zealand, and 0800 and email support, all through www.fertilitynz.org.nz



As you read this magazine you'll see various symbols:

The stop sign refers to important information to keep you safe during treatment. Please make sure you read each **Safety Message** carefully.

You'll probably want more information on some topics. We have over 30 in-depth information sheets on our website which we call **Fertility Facts**. If you can't use the web, our staff are happy to print a copy of what you are interested in.

Our nurses will give you **Specific Information** at various steps during your treatment. This is written information you need at that point of your treatment, for instance your cycle timetable; how to give a particular medication; or care after egg collection.

Did you know? Highlights interesting facts that may surprise even the well-informed.

The koru is one of New Zealand's most loved symbols. Based on the unfolding of the new shoot of the silver fern, it symbolises new life, hope and strength. We use it to highlight **Fertility Tips** to help you along your journey.

Many people have generously shared their stories with us. We use this symbol to indicate the **experiences and insights** of some of those who have already made the journey.

If your treatment involves a **sperm donor, an egg donor, embryo donation or surrogacy**, then there is extra information for you where you see this symbol.

After hours emergency care

If you suffer from any side effects of treatment or pregnancy such as pain, fever, or other symptoms mentioned in various sections of this magazine, call the clinic. To speak with a doctor/nurse outside clinic hours, please phone your clinic number, and choose the option for the doctor/nurse on call. The clinic telephone numbers are:

Auckland: 09 520 9520
Hamilton: 07 839 2603
Wellington: 04 384 8401
Christchurch: 03 375 4000
Dunedin: 03 955 4546

If you are unable to contact the doctor or nurse on call, please go to your nearest hospital emergency department.

Our approach and values

DR FREDDIE GRAHAM and Dr Richard Fisher started IVF in New Zealand in 1983, only five years after the world's first IVF child was born. Within three years the wait for IVF at National Women's Hospital had grown to seven years. It was then that Freddie and Richard decided to start a private practice which they called Fertility Associates. Fertility Associates now has clinics in Auckland, Hamilton, Wellington, Christchurch and Dunedin. It provides public as well as private services, and our doctors hold consultations in most of the larger cities in the North and South Islands. We do more fertility treatment in New Zealand than everyone else put together.

Our approach

Your Fertility Associates doctor looks after your overall care. This is the person you will see at your medical consultations, who will plan each of your treatment cycles, and who will review how the cycles went. Your doctors' nurse will usually be your main point of contact during treatment.

Our doctors, nurses, and embryologists are rostered to provide a seven-days-a-week service, so you'll meet several other members of the team during a treatment cycle.

When treatment is underway we take as much time as is needed. The doctors' schedules may occasionally be delayed when an egg collection or embryo transfer takes longer than expected, or for similar unforeseen circumstances. We will try to advise you if your appointment is likely to be more than 30 minutes late.

Each treatment is guided by detailed medical and scientific protocols which our doctors and scientists have collectively decided upon. These are based on what we consider best practice world-wide and from over 35 years of our own experience of fertility treatment in New Zealand. We are continually reviewing our results and looking for better ways of doing things. If you have surfed the net you will know that there are lots of opinions on all sorts of subjects – we keep to evidence-based medicine wherever possible, and are wary of the latest fads.

Our values	How we express these values for you	Whakatauki
Care	Understanding and sharing your journey with compassion.	Kia manaaki E iti noa ana, nā te aroha.
	Understanding the values you hold and supporting the path you take. Honouring the body and spirit in our work.	Kia tapu He whare tangata, he waka tangata.
Responsiveness	Listening so that we meet your needs.	Kia tika Ko te kai ā te rangatira, he kōrero.
	Making services accessible and acceptable for all, and particularly for Māori. Together developing tikanga for ART.	Kia tipu E tipu e rea mō ngā rā ō tōu ao.
Excellence	Helping you overcome the obstacles in your path.	Kia mana He kakano i ruia mai i Rangiatea.

Family, whanau and support people welcome

Many people go through treatment as a couple – your partner's support is really important. You are also welcome to bring family members, friends/whanau or support people to any of your consultations and treatment appointments.

Variation and unexpected events

While the reliability of fertility treatment has increased greatly over the years, it is important to realise that there can be uncertainty at some steps of treatment and variation between one treatment cycle and the next. For instance, the number of eggs collected in IVF and the proportion that fertilise normally can fluctuate significantly just through normal biological variation. If your treatment looks like it is not progressing as expected, we will tell you as soon as we know and help you make a decision about what to do.

IVF involves many steps – handling sperm, eggs and embryos and using highly specialised equipment. Almost everything needs to be done under a microscope in a carefully controlled laboratory environment. Fertility Associates embryologists make about a million 'embryo movements' a year. Accidents and equipment malfunctions are very rare but can occasionally occur. We have an open disclosure policy so that if an incident develops we will promptly tell you. If there is an incident within our control that significantly affects your chance of pregnancy, we will discuss options including replacement of treatment to bring you back to where you were before the incident. This is in addition to your rights under the Consumer Guarantees Act and the Code of Health and Disability Services Consumers' Rights.

Health and well-being of women and children

Fertility treatment in New Zealand is guided by the Human Assisted Reproductive Technology (HART) Act, which says that the health, safety and well-being of children, and of women being treated, are important considerations and must be protected. Health and well-being can be physical, social or psychological – for instance risk from an underlying medical condition such as diabetes, lack of social support, or mental health.

In our registration form we ask you to disclose all information that may be relevant to your health and well-being or to that of a child who could be born from treatment. Keeping your health and wellbeing in mind is part of our job, and staff may share relevant information with your doctor. In doing so they would keep details confidential, so you can be assured of your privacy.

If we have any concerns, we will raise them with you. We may ask your permission to obtain further information from your GP or another health provider. Sometimes we might suggest extra help from outside Fertility Associates – for instance seeing an obstetric physician or a social worker. If we feel our concerns cannot be adequately addressed with extra help, we may decline treatment or a service, although this rarely happens. We have a formal process for declining treatment and we would keep you well informed throughout the process.

Care of sperm, eggs and embryos

Our embryology team will care for your sperm, eggs and embryos and give them the respect that they deserve. Our consent forms will ask whether you want non-viable sperm, eggs or embryos returned to you after treatment or after storage. If you have any questions or concerns, please ask your doctor or the embryology team leader in your clinic.

Terms and conditions

Fertility treatment, including storage of sperm, eggs and embryos, can be complex, last over several years, and have obligations for you and for us. We have decided to formalize the Terms and Conditions (T&C) associated with fertility treatment. These will be introduced throughout 2023 as people start a treatment cycle or renew storage for sperm, eggs or embryos. You will receive a copy of the T&Cs and they will be available on our website.

Our quality policy

The directors and staff are personally responsible for the quality of your care, your safety, and optimising your chance of success. Each year we set ourselves goals – personally and as a company – so that we continually improve.

Quality

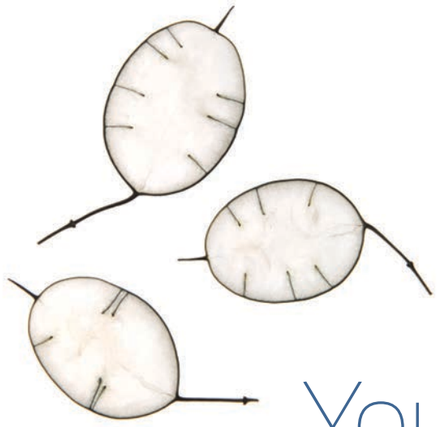
We set ourselves very high standards that include voluntary certification to ISO 9001, certification to the Australian RTAC Code of Practice as well as the New Zealand Fertility Standard required by the Ministry of Health. These involve audits by independent professional auditors. Auditing includes inspection of patient records – the auditors sign a confidentiality agreement to maintain your privacy. All New Zealand clinics provide non-identifying information on every Assisted Reproductive Technology (ART) treatment to the Australian New Zealand Assisted Reproduction Database (ANZARD) administered by the National Perinatal Statistics Unit (NPSU) at the University of Sydney. The ANZARD information is used for research into the safety of fertility treatments.

Feedback, complaints and advocates

Because we want to give you the best possible service we can, we are always keen for feedback. We send surveys to a selection of patients every month. The survey forms are available anytime on our website. Please tell us straight away if our service isn't meeting your expectations. You can talk to any of our staff, call the Clinic Manager, or send an email. Fertility treatment can be complex at the best of times, and we know that a shortfall in our communication or explanation can be very stressful.

Identifying a problem or making a complaint will not affect your treatment in any way. We aim to confirm any complaint within two working days and to fully resolve it within two weeks or less. You are welcome to involve a support person if you have a complaint or wish to discuss any aspect of your treatment. If you are not satisfied with our efforts in resolving a problem we can help you contact an Independent Health Advocate associated with the Health and Disability Commissioner. Contact numbers for Independent Health Advocates are:

Upper North Island, including Auckland	0800 555 050
Mid and lower North Island	0800 423 638
South Island	0800 377 766



Your privacy

ALTHOUGH PRIVACY is important for all health information, this is especially so for medical information about fertility. To help meet our obligations under the Privacy Act 1993 and the Health Information Privacy Code 1994, we have developed a variety of policies.

Collecting information

We only collect information that is relevant to the services we provide you. If we want extra information, for instance from a previous fertility provider, your GP, or another health service, then we will get your permission first. If you are a donor or are using donor sperm, eggs or embryos or surrogacy, there is some information we are obliged by law to obtain and this is explained in this magazine and in our consent forms.

Disclosing information

We will ask permission before we pass on information we hold about you. In our patient registration form, we ask you whether you want us to send copies of letters to your referring doctor and/or GP. Our registration form also covers sharing information between partners. Our staff, contractors and auditors sign an agreement not to disclose any information they may come across, and not to mention anybody that they see in the clinic.

We may disclose relevant personal and health information when we arrange other medical services, such as blood tests and ultrasound scans, and where it is required by regulations, such as to the ethics committee.

Some medical information may be held by associated providers, such as the company providing the Salve patient app. Fertility Associates assess the security and confidentiality of each provider. Providers such as Salve will also ask for your agreement when you download the app. We may provide your name in relation to billing or debt recovery, but we would not disclose what the debt was related to.

If you are a donor whose sperm, eggs or embryos give rise to a pregnancy, or a person who has a pregnancy arising from donated sperm, eggs or embryos or from surrogacy, then we are obliged by law to provide Births, Deaths and Marriages with a particular set of information – this is explained in our patient information and in our consent forms.

The Health Information Privacy Code makes allowance for disclosure of information in exceptional circumstances, but it is unlikely that this will ever be required with respect to fertility care.

Quality activities

We are required under government regulations to provide non-identifying information about some treatments to bodies like ACART and the Australian New Zealand and Assisted Reproduction Database (ANZARD). We mention this in our consent forms for the relevant treatments. None of this information is identifiable, and each user has a strict code of practice for using the information we give them.

Although privacy is important for all health information, this is especially so for medical information about fertility.

Questions and concerns

If you have any questions, please ask. Fertility Associates has a Privacy Officer who can help with any concerns you might have. In addition, you can seek advice from the Office of the Privacy Commissioner on 09 302 8655 or 0800 803 909, or visit www.privacy.org.nz.

Ownership, correction and copying your medical information

You own your medical information and can ask to see it and correct it at anytime. We may charge to copy your medical records, but we can usually do this for free if you give us a reasonable amount of time.

There are some circumstances under which a health provider can restrict access to medical records, and we would explain this if it arose.

Although you own your medical information, we own our copy of it (eg. the paper or computer records), and can keep that even if you want to move to another fertility clinic or no longer want treatment.

We must keep medical information for at least 10 years, stretching to 26 years if treatment results in a child and 50 years if the child is conceived using donor sperm, eggs or embryos.

Medical records about fertility are more complex than most health records because they often concern a person and their partner. Generally if a relationship breaks down, then a person can only access that portion of their fertility records that relates to them. For instance, a woman could not access her former partner's semen analyses without his written consent.

Security

We have put in a lot of steps to try to keep your medical information secure and intact. However, we know that lapses can occasionally happen despite best intents and efforts. If you receive any information that is not yours, please notify us immediately. We will try to find the root cause of any breach to prevent it happening again.

Contact in the future

Our consent forms for treatment ask whether we can contact you in the future to see if you are interested in taking part in research. About 80% of people agree to this, for which we are very thankful. This has been extremely valuable for following up the health of children born after fertility treatment. If you do not agree to follow-up for research, we would only contact you if it was about a matter which could affect your or your children's heath or wellbeing.

Your rights and responsibilities

In New Zealand there is a Code of Rights that every consumer of a Health and Disability Service is entitled to expect from their service provider. Fertility Associates abides by this code. We have summarised what you can expect from us, and in turn, what we expect from you.

As a patient you are entitled:

- To receive competent, considerate and confidential care in a respectful, culturally acceptable manner.
- To know the names and designations of the people involved with your care.
- To be given information about your condition, what treatment can be offered and what is likely to happen.
- To receive enough information to make decisions about your treatment and care to enable informed consent.
- To have access to interpreters where appropriate.
- To give or withhold consent for any treatment, operation or anaesthetic after being given information about the advantages and risks.
- To ask for the opinion of a second doctor if you feel the need.
- To be interviewed in private.
- To receive services that are safe and meet acceptable standards of quality.
- To provide feedback or make a complaint, and have access to an independent advocacy service.
- To be asked for your consent before taking part in any teaching or research programme.

Your responsibility to us:

- To tell our staff if you do not understand the information you have been given about your care or treatment.
- To tell the doctor of any changes in your health or wellbeing.
- To show consideration for other patients and to our staff.
- To respect the privacy and confidentiality of other patients you might see in our clinics.
- To ask our staff for help when you have any questions or concerns.
- To co-operate to the best of your ability in the treatment or course of care you have chosen.
- To give us feedback about our service.

FA and the law

NEW ZEALAND LAW comes up in several places in this magazine – particularly when we talk about donor treatment, and storing sperm, eggs or embryos. This section gives a brief introduction to the main legislation applying directly or indirectly to fertility treatment.

The Human Assisted Reproductive Technology (HART) Act sets down principles to guide providers such as Fertility Associates, states what is prohibited, puts limits on the duration of storage, describes how the Advisory and Ethics Committees (ACART and ECART) work, and specifies what information needs to be collected, stored and provided for donors and donor children. Key donor information is stored for 50 years.

Like all health providers, we are subject to the Health and Disability Commissioner (HDC) Act, which specifies New Zealand's Patient Code of Rights. This Code is displayed and is available in each clinic, and is also available at www.hdc.org.nz. The Code sets out a number of protections, but it doesn't cover financial reimbursement. The HART Act takes precedence over the HDC Act if any conflict of interpretation arises.

The Privacy Act and Health Information Code have been covered in the previous section. The Health Information Privacy Code is available at http://privacy.org.nz/assets/Files/Codes-of-Practice-materials/HIPC-1994-incl.-amendments-revised-commentary.pdf.

The Human Rights Act sets down prohibited grounds of discrimination for goods and services. Fertility treatment is considered a goods and service, so we cannot withhold treatment based on age, for instance. However, we can have aged-related clinical policies when risks are related to age. For instance, we require women over a certain age to see an obstetric physician to check their general health before donor egg treatment. Publicly funded treatment is limited to those most likely to benefit, and so may use age-related criteria for eligibility. They also restrict publicly funded treatment to biological, and not social, infertility.

Donation is not a goods and service, so donors can place any sort of restriction on the use of their sperm, eggs and embryos.

The Status of Children Act and its various amendments define who is or are the legal parent(s) of a child born in New Zealand. A parent is usually defined by who is living with the mother at the time of birth, not who consented to treatment at the time of insemination or embryo transfer. This Act has some very specific sections about parentage from ART treatment. If you are considering treatment but are still married to a previous partner, please seek legal advice.

The Adoption Act is very important in surrogacy, since the birth mother and her partner are the legal parents of a child born in New Zealand. Arranging adoption is an important part of surrogacy.

Acts of parliament, including those mentioned above, are available at http://www.legislation.govt.nz/default.aspx.

Understanding fertility language

Jargon

Most areas of medicine and science have their own jargon and fertility is no exception. The most common terms are listed here. You will probably just skim this section at first and then refer back to it when you want to check out the meaning of an abbreviation or term.

Our website www.fertilityfacts.co.nz has a comprehensive glossary of terms and abbreviations used in reproduction and fertility treatment, and more information on medications.

You may have already encountered some of these abbreviations, but here are some of the more common fertility treatments and the abbreviations used for them:

Glossary

Clomiphene & Letrozole	A pill usually taken for 5 days early in the menstrual cycle that increases the number of follicles that grow in the ovary. Commonly used in Ovulation Induction.
OI	Ovulation Induction is a treatment to induce ovulation in women with irregular or absent cycles.
IUI	Intrauterine Insemination is when sperm is placed directly into the uterus.
IVF	In Vitro Fertilisation. It strictly means adding sperm and egg together outside the body, but it is usually used to describe the whole process covering medications, egg collection, fertilisation, and embryo transfer.
ICSI	Intracytoplasmic Sperm Injection. Surely one of the craziest bits of IVF jargon – it simply means a single sperm is injected into each egg when the sperm cannot do this job themselves.
IMSI	Intracytoplasmic Morphologically selected Sperm Injection. An even worse bit of jargon describing ultra-high magnification of sperm before they are selected for ICSI.
IVM	In Vitro Maturation is a variation of IVF that starts with immature eggs collected without using ovarian stimulation.
DS	Donor Sperm (formerly called Donor Insemination). Donor sperm can be used with IUI and IVF.
DO	Donor Oocyte or donor egg – 'oocyte' is the scientific name for an egg. Donor egg is when another woman's egg is used in an IVF cycle.
DE	Donor embryo is when an embryo is donated to someone who is not the biological parent.

Follicles and eggs

The eggs in the ovary are tiny – smaller than the full stops on this page. The egg starts off surrounded by a layer of granulosa cells. The granulosa cells multiply into a ball of cells, and then into a fluid-filled sac called a follicle. At the beginning of a menstrual cycle the largest follicles are 4–6mm in diameter. At the time of ovulation they have grown to 18–22mm, which is about the diameter of a NZ one-dollar coin.

Glossary

IVF treatment has its own set of acronyms and terms:

Cycle	One course of treatment. With IVF, this is from Day 1 through to the pregnancy test.
OPU	Oocyte PickUp – also known as egg collection, when the eggs are taken from the ovaries.
ET	Embryo Transfer – when the embryo(s) is transferred back into the uterus.
SET	Single Embryo Transfer – when only one embryo is transferred into the uterus at a time.
FET	Frozen Embryo Transfer. Essentially the defrosting and replacement of an embryo that has been frozen and stored with us after a cycle of IVF. Also known as Thawed Embryo Replacement (TER).
Manufactured cycle	An artificial menstrual cycle used to provide the right environment for the transfer of embryos.
Blastocyst	The name given to an embryo 5-7 days after fertilisation when it consists of an outer layer of cells that will become the placenta and an inner mass of cells that will become the baby.
SSR	Surgical Sperm Retrieval – when sperm are taken directly from the testes using a fine needle.
PESA	Percutaneous Epididymal Sperm Aspiration – SSR when sperm are taken from the epididymis, which is a tiny organ sitting on top of the testis.
TESA, TESE	Testicular Sperm Aspiration, Testicular Sperm Extraction – other names for SSR.
OHSS	Ovarian Hyper-Stimulation Syndrome – a condition that can occur a few days after egg collection that is caused by too many follicles being stimulated to grow at once in the ovaries. Fluid moves from the blood into the abdomen and into tissue. Untreated, it can have serious consequences, including stroke and even death.
PGT-A	Pre-implantation Genetic Testing for Aneuploidy, which is screening embryos to see whether they have the correct number of chromosomes. Previously called PGS.
PGT-M	Pre-implantation Genetic Testing for Monogenetic disorders, which is screening embryos for inherited genetic disorders caused by a single gene. Previously called PGD.
PGT-SR	Pre-implantation Genetic Testing for Structural Rearrangements, which is screening embryos for inherited disorders arising from pieces of a chromosome being swapped to another chromosome. Previously called PGD.
TiMI	Timelapse Morphometry Imaging, for studying embryo development.

Protocol

You will also come across:

Day 1	The first day of your period or menstrual bleeding. When you start a treatment cycle, we count day 1 as the first day you wake with your period. So if your period starts in the afternoon, the next day is called 'day 1'.
Catheter	This is a fine tube put into the body. In fertility it nearly always refers to a catheter put into the uterus for embryo transfer in IVF or insemination in IUI.
Biochemical pregnancy	A pregnancy that ends at a very early stage. Its name comes from the fact that the pregnancy is detected by biochemical tests like blood tests.
Clinical pregnancy	A pregnancy that can be detected by an ultrasound scan.

Visit our website for a comprehensive glossary of terms and abbreviations used in reproduction and fertility treatment, and more information on medications: www.fertilityfacts.co.nz

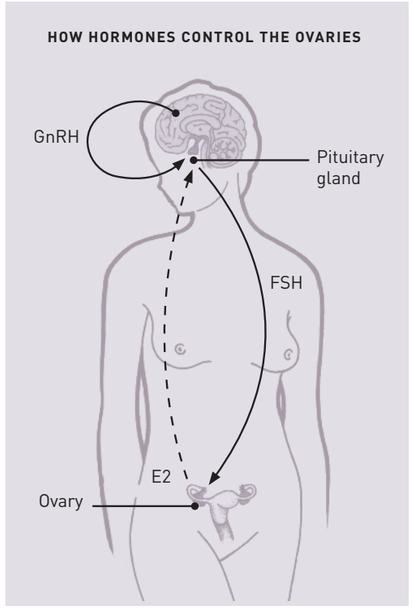
Hormones and medications

Most of the medications used in treatment are versions of the body's own hormones.

Let's start with the hormones. In the natural menstrual cycle, the brain controls the pituitary gland, and the pituitary gland controls the ovaries. The hormones made by the follicles in the ovaries feed back to the brain and pituitary to keep the whole system in control. You can think of it as a bit like driving a car. To get started you push down hard on the accelerator. Once you reach the desired speed you ease off on the accelerator.

The body does the same. The brain releases a hormone called Gonadotrophin Releasing Hormone (GnRH). GnRH makes the pituitary release a hormone called Follicle Stimulating Hormone (FSH). FSH makes the follicles grow and the follicles release Estradiol (often abbreviated to E2). When the brain and pituitary sense increasing levels of E2 they ease off the release of FSH.

Using this analogy, fertility treatments like clomiphene, IUI with ovarian stimulation and IVF are rather like driving the car faster. How it is done is quite sophisticated. The doctors and scientists who design the ovarian stimulation methods are like the engineers who soup-up the car engine. The clinic staff monitor the ovary during the course of treatment using blood tests and ultrasound scans; their job is similar to driving the car at high speed. The table on page 16 summarises the hormones involved, what they do, the main medications we use, and how they work.



More information

www.medsafe.govt.nz – use the 'search' box to find the data sheet for any medication.

www.emdserono.com/en – choose 'therapies', then 'fertility'.

www.fertilitylifelines.com – good index for Serono products.

www.puregon.com

www.msd-newzealand.com – choose 'products'.

There are a variety of types of ovarian stimulation, all of which use medications that are the same as, or mimic, the body's own reproductive hormones. See our Fertility Facts on Ovarian Stimulation. www.fertilityfacts.co.nz

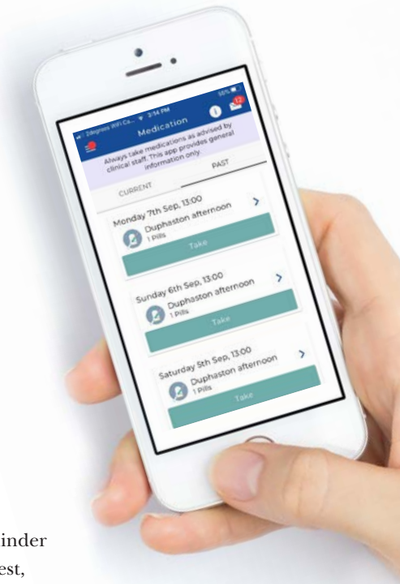
See our Fertility Facts Glossary of Terms and Drugs for information on side-effects. www.fertilityfacts.co.nz

Hormones and medications

The hormones	What the hormones do	The medications	Medication trade names	What the medications do
Gonadotrophin Releasing Hormone (GnRH)	Release FSH and LH from the pituitary gland.	GnRH agonists	Decapeptyl, Leuprolide, Lucrin, Zoladex, Synarel, Goserelin	Modified version of the body's own hormone. They initially stimulate the release of FSH just like GnRH, but then the body adapts and stops secreting its own GnRH. This is called 'down regulation'. By doing this, they prevent the LH surge.
		GnRH antagonists	Cetrotide, Orgalutran	Modified version of the body's own hormone. They block the body's GnRH and therefore prevent the LH surge.
Follicle stimulating hormone (FSH)	Stimulates follicles in the ovary to grow.	Follicle stimulating hormone (FSH)	Gonal F, Puregon, Elonva, Menopur Bemfola	Copy or modified version of the body's own hormone, so they do the same thing.
Luteinising hormone (LH)	A surge of LH in the middle of the cycle triggers the final maturation of the egg and ovulation of the follicle(s) containing mature eggs. After ovulation it helps maintain progesterone secretion.	Luteinising hormone (LH)	Luveris	Copy of the body's own hormone. Not used much because it is so expensive.
human Chorionic Gonadotrophin (hCG)	hCG is the main hormone made by the early embryo once it implants. It has a similar biological effect to LH. hCG is the hormone detected by pregnancy tests.	human Chorionic Gonadotrophin (hCG)	Ovidrel, Pregnyl	Ovidrel is a copy of the body's own hormone; Pregnyl is purified from the urine of pregnant women. Mainly used instead of LH to trigger ovulation because it is more convenient and cost effective.
Estradiol (E2)	E2 is the main estrogen hormone made by developing follicles. It has many actions, including growing the lining of the uterus (called the endometrium).	Estradiol (E2)	Progynova, Estrofem, Climara	Copy of the body's own hormone. Used in Programmed cycles.
Progesterone (P4)	P4 is the main hormone secreted by the follicle once it has released its egg. Its major action is to maintain the lining of the uterus so an embryo can implant and cause a pregnancy.	Progesterone (P4)	Utrogestan, Crinone, Gestone, Duphaston	Copy of the body's own hormone. Used in Programmed cycle, and to support the uterus in IVF cycles.
		Clomiphene citrate (CC)	Serophene	Blocks feedback by estradiol so the pituitary gland releases more FSH.
		The contraceptive pill	Levlen ED, Microgynon, Ava	Low dose estrogen in the pill stops the release of FSH and LH and helps make IVF more reliable.
		Letrozole	Letara, Letrole	Blocks production of Estradiol so pituitary gland releases more FSH.

Salve

Please download our patient app, that guides you through treatment.



What is the Salve app for?

Salve is a patient app that takes the hassle out of fertility treatment by keeping you up to date day by day. The Salve app has been created by an energetic group of IT developers in London who include former fertility patients, so they know what you need and want. Salve integrates with MediTEX, the patient record system we use, which means the Salve app notifies you as soon as your medical record gets updated. Salve is adding new features all the time, and we'll be using these as they come online. Salve is being adopted by leading clinics in the UK and Europe.

Security & Confidentiality

The Salve app meets the stringent European General Data Protection Regulations (GDPR). These are explained when you download the app. You can unsubscribe at any time. If you have a partner and are linked in Meditex they will be able to view appointments and medication reminders. More detail is included in the Salve consent as you download the app. You can opt out of sharing this information in the preference settings in the app.

What does Salve do?

- **Medication reminders** You'll get a reminder 15 min before each medication is due. If you are taking several medications, or medications more than once a day, you'll get a reminder for each medication each time. Each reminder gives you information about the medication, including Fertility Associates instruction on how to take the medication – often with a video, and the pharmaceutical company's information for patients. If your medication plan changes for any reason Salve will also update as the clinic adjusts your plan.
- **Blood test reminders** You'll get a reminder each morning you are due for a blood test, along with information about where you can get the test done and when the lab is open.
- **Scan appointment reminders** You'll receive a notification the day before a scan at the clinic, and again an hour beforehand, along with information about preparation for the scan.
- **Appointments for egg collection, embryo transfer & inseminations** As well as being a reminder for an upcoming egg collection, embryo transfer or insemination, the message also carries key information about the procedure taken from our patient information, from what to do in preparation, when to arrive, all the way through to possible side effects.
- **Secure messaging** Salve works like WhatsApp without attachments. We're moving from TXT and email to Salve for sending messages about what is planned and what is happening next, and you can send messages to your team at Fertility Associates. Our Salve messages to you, and your messages to us, become part of your medical record in MediTEX.
- **Documents** We will also send letters and individual documents via Salve by uploading them into your documents on the app.

"I really liked the medication notifications to make sure I took the injections at the right time & didn't forget them. It has ended up being our go-to place for when we have a question. It's a great addition to patient communications."

salve

Salve is constantly improving & adding functionality.

Languages

Fertility Associates provides services to patients from a wide range of ethnic backgrounds and is happy to accommodate the needs of people from all cultures.

MAORI

He kākano i ruia mai i Rangiātea. Ki te hiahia i te kaiwhakamaori ka taea. Kei te tautoko Te Rauhanga o te Whare Tangata i te reo Māori. Ina hiahia koe ki te korero Māori ki te tākuta, tono mai i te wiki i mua i to whakaritenga kia ahei te kimi i tetahi kaiwhakamaori. Mena māu tonu te utu mo ngā maimoatanga, kei a mātou ngā nama wāea hei whakarite māu. Mena mā te ratonga hauora te utu, mā mātou anō e whakarite. Ka taea hoki te mau mai i te hoa, te whanaunga rānei hei kaiwhakamāori i ngā kōrero. Heoi anō me whai whakaaro ki te āhua o ngā kōrero ka whakawhiti kei waenganui i a korua ko te tākuta. Ka rongo te kaiwhakamaori ki te katoa o ngā kōrero ka whārikitia e pā ana ki tōu oranga. Kei a mātou ētahi pānui whakamarama i roto i te reo Māori engari ehara i te katoa. Ina hiahia koe ki te kōrero i tēnei take, pā atu ki te tari kaimihi, tōu nēhi rānei. Mauri ora.

FRENCH

Fertility Associates a accès à un service d'interprétariat dans plusieurs langues. Si vous avez besoin d'un interprète lors de vos consultations, veuillez appeler la clinique au moins une semaine à l'avance pour faire les arrangements nécessaires. Ce service sera a votre charge. Avec plusieurs années d'expérience avec Fertility Associates, notre interprète sera a vos cotés pendant toute la durée de votre traitement. Si vous le désirez, un membre de votre famille ou un ami peut vous servir de traducteur. Soyez toutefois conscient que cette personne assistera aux discussions concernant vos antécédents médicaux et votre vie personnelle. Notre capacité à fournir de la documentation en différentes langues se perfectionne de jour en jour. N'hésitez pas à vous adresser aux réceptionnistes ou aux infirmières si vous désirez en savoir davantage.

La majeure partie de notre documentation sur la FIV et sur le don d'ovules, ainsi que les formulaires de consentement associés à ces traitements, sont disponibles en français.

TRADITIONAL CHINESE

生殖醫學協會可以提供多國語言的翻譯服務，如果診療過程有需要翻譯人員來協助，請提前至少一周的時間通知我們來安排預約。
如果您是自費病人，協會將告知您翻譯人員的聯繫方式，由您直接聯絡翻譯安排您的會診時間，翻譯會直接向您收取療程中所需要的翻譯費用。
如果您是政府資助病人，相關翻譯的費用已包含在裡面，但您必須提前通知我們來幫您安排翻譯。您也可以找您的家人或朋友為您翻譯，但您必須知道的是：他們將會參與您診療的全程，在診療中會與醫生，護士一起商討您的病史甚至您的個人生活等。
除了英文外我們還為病人提供其他幾種語言的文字資料，並在不久的將來能提供更多的語言資料。如果您想要了解更多詳情，請諮詢我們的接待人員或您的護士。

Interpreters

Fertility Associates has access to interpreting services for many languages. If you are coming in to the clinic and require an interpreter to be present at your appointment, please call our clinic at least one week in advance to organise this. If you are a private patient, you will be given the contact details of the interpreter for you to call and organise their services with them directly. There will be a cost for this service and the interpreter will charge you directly. If you are a patient using publicly funded treatment, the cost is covered by public funding but you will need to let us know in advance that you require this service so we can organise an interpreter for you. Alternatively, you are welcome to have a family member or friend act as your interpreter. However it is important to remember that they will be present throughout your consultation with the doctor and nurse, and therefore, will be privy to the whole discussion about your medical history and personal life.

We also provide some patient information in a few languages other than English and will be expanding our range over time.

HINDI

आपका स्वागत है, फेर्ट्लटिी असोसअिटेस में कई भाषाओं के माध्यम द्वारा अपनी बात कहने और समझने के लएि दुभाषयि की व्यवस्था है. जब आपको क्लनिकि आना हो और दुभाषयि की आवश्यकता तो आप हमें नर्धिारति तथिसि कम से कम एक सप्ताह पूर्व सूचति करें ताकि व्यवस्था की जा सके.. यदि आप प्राइवेट रोगी हैं और आप ये सुवधिा लेना चाहते हैं तो आपको दुभाषयि का संपर्क ववरिण दयिा जायेगा और आपको उससे सीधे संपर्क करना होगा. इस सेवा का कुछ शुल्क होगा जो आप द्वारा सीधे दुभाषयि को देय होगा. यदि आप कसिी अनुदान या सरकारी व्यवस्था के अंतर्गत हैं तो ये शुल्क आपको देय नहीं होगा लेकनि इसकी पूर्व सूचना देना आवश्यक है ताकि समय से व्यवस्था की जा सके.

वैकल्पकि रूप से यदि आप अपने कसिी सम्बन्धी या मत्रि को अपने साथ लाना चाहें तो भी आपका स्वागत है. लेकनि इस दशा में ये बहुत अनविार्य हो जाता है की वो व्यक्ति हमेशा डॉक्टर या नर्स से वार्ता करने के समय पर उपलब्ध हो एवं वो आपके संपूर्ण चकित्सिा इतहिास एवं आपके व्यक्तगित जीवन की गोपनीयता बनाये रखे.

रोगी की चकित्सिा जानकारी, अंग्रेजी के अलावा, हम कुछ दूसरी भाषाओं में भी उपलब्ध कराते हैं. भवष्यि में इसका समय-समय पर और भी वस्तिार कयिा जायेगा. यदि आप वस्तिृत जानकारी चाहते हैं तो स्वागत कक्ष में आकर हमारे कर्मचारी या नर्स से संपर्क कर सकते हैं.


Waiting


Clomiphene & Letrozole


IUI


IVF


Donor


Surrogacy

Pathways to a child

There are many pathways through fertility treatment. Everyone experiences it differently and this section is aimed at helping to explain the journey you may take along this pathway.

We have used the analogy of fertility treatment as a formal garden where different treatments are like different parts of the garden to provide icons for the sections of this booklet.

What treatment is best for you depends on a number of factors – the cause of infertility, sometimes how long you have been trying, the woman's age, and your own preferences. When there is a choice, some people prefer to start with a simpler (and cheaper) treatment and then move on if that doesn't work, while others choose the treatment with the highest success rate. Public funding for fertility treatment in New Zealand is limited, so cost is also an important factor in choosing what treatments to consider and in what order.

Modern fertility treatment offers almost everyone the chance of a child if they persist. The power of persistence is illustrated at the end of this section.

Waiting

Sometimes continuing to try naturally for a bit longer may be an option where the woman is younger, infertility is unexplained or only mild factors are found, and when the length of infertility is quite short.

Professor Wayne Gillett has followed up couples attending his Dunedin fertility clinic who initially did not get enough points for publicly funded treatment because of a relatively short duration of infertility. About 30% of women became pregnant without treatment within the next two years. For some people this is an attractive option; others just want to get on with treatment.

Clomiphene & Letrozole treatment

Clomiphene Citrate was the original 'fertility pill' and it is still widely used. Letrozole is a newer alternative. These are the most 'natural' options for fertility treatment – there are no injections and you still have sex to become pregnant. Clomiphene or Letrozole are mainly used for two groups of people – women who don't ovulate or who have irregular cycles, and women with a shorter duration of unexplained infertility.

The main side-effect is the chance of twins, which can be reduced to around 5–10%, by checking the body's response to the medication using a blood test or an ultrasound scan. Overall, about 20-30% of women aged 37 and under have a child using up to 3-4 cycles of Clomiphene or Letrozole.

Intrauterine Insemination (IUI)

IUI is the next step up from clomiphene and it can be used for quite a wide range of causes of infertility. It involves preparing sperm in the lab and then putting the best sperm directly into the uterus in a procedure that is a bit like having a cervical smear.

In nature only one in a hundred sperm that are ejaculated reach the uterus, so IUI gives sperm a head start in their journey to the egg. IUI is usually combined with Clomiphene or Letrozole to increase the number of eggs ovulated from one to 2 or 3. IUI cycles typically involve some blood tests and 1-2 ultrasound scans.

IUI is usually offered as a course of 3 or 4 cycles. Around 40–50% of women aged 37 and younger have a child within 3 to 4 cycles. The main side-effect is a 5-10% chance of twins

.

In Vitro Fertilisation (IVF)

Almost every cause of infertility can be successfully treated with IVF – male infertility, tubal damage, endometriosis, ovulation problems and unexplained infertility. It is usually the logical step if simpler types of

→

Fertility Associates' Fertility Cover™ package includes up to three full cycles and the use of any frozen embryos. To find out more, visit our website: www.fertilityassociates.co.nz

treatment have not worked.

IVF starts with medications to increase the number of eggs, then moves to adding the sperm to the eggs in the lab. When sperm are injected directly into the egg, it is called ICSI. The embryologist selects the best embryo for transfer into the uterus, and any other good quality embryos can be frozen for another chance of pregnancy.

Because IVF typically makes 8-16 eggs available, younger women have a 40-50% chance of having a baby from a single treatment.

Donor sperm

Donor sperm is an option when a man has no sperm or when his sperm are unable to fertilise his partner's eggs, for single women and female-female couples. Donor sperm can be used with IUI or IVF. A donor can be either a personal donor (often a family member or friend) or a clinic-recruited donor.

Donor egg

Donor egg may an option when a woman has undergone early menopause, when her eggs do not fertilise or develop normally, or when the chance of pregnancy using her own eggs is low because of her age. You can read more about eggs and age in the "Age – hers and his" section of this magazine. Donor egg is a type of IVF treatment where the egg donor undertakes the first part of the IVF cycle. It is common for people who have tried unsuccessfully to have a child by IVF using their own eggs to then consider donor egg.

Donors can be a family member, a friend, or people can advertise for a donor. Replies to the advertisements are managed by the clinic and, once a donor is chosen by you, the clinic screens and prepares the donor for treatment.

Surrogacy

Surrogacy may be an option when a woman no longer has a uterus or is unable to safely carry a pregnancy. Surrogacy with donor egg is also an option for male-male couples and single men. Surrogacy in New Zealand requires approval by ECART, obtaining legal advice, and prior arrangements for adoption as the woman carrying the child (the surrogate) is the legal mother, and if she has a partner then he or she is the other legal parent.

Donor embryo

Once a couple or person has completed their family after IVF treatment, they may still have embryos stored. Donating these embryos to another person or couple may be an option. Embryo donation requires ECART approval and careful preparation by both the donors and recipients because if a child results from the donation, the two families will have children who are full siblings to each other.

Combinations of donors

It is possible to use a combination of donors and or surrogacy. ECART approval is needed whenever a combination of donors is considered.

The power of persistence

A woman in her mid-30's has about a 20% chance of becoming pregnant in a particular menstrual cycle and the pregnancy developing to a live birth. The chances are about the same per month for IUI using donor sperm, and about twice as high at around 40% for IVF. People don't give up if they don't become pregnant naturally in the first month they try, and we advise people to take the same approach if they need to use fertility treatment.

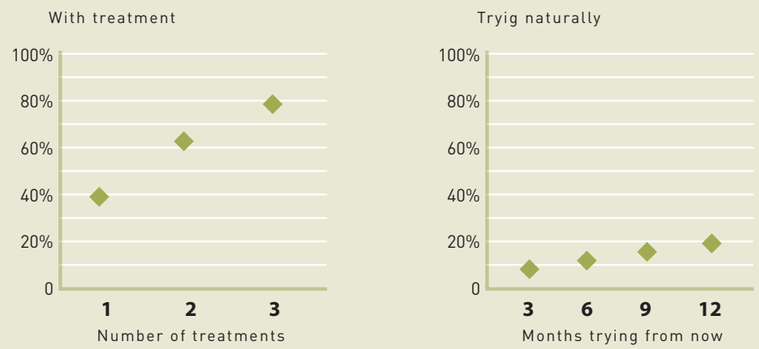
Publicly funded fertility treatment gives people the opportunity of two IVF cycles to try for a child. Analysis of FA experience shows that 70% of women 34 and younger have a child within that allocation. The rate was around 55% for women aged 35 to 37, and 40% for women aged 38 to 41.

Fertility Associates has a similar scheme for privately paying patients called Fertility Cover, where people pay up front for up to 3 egg collection cycles, with a 70% refund if they do not achieve success. 85% of people staring Fertility Cover have had at least one child.

Our doctors have an app to estimate the overall chance of having a baby using an appropriate fertility treatment compared to trying naturally for the next 12 months. The app uses Fertility Associates' success rates plus information from a New Zealand study looking at the chance of becoming pregnant without fertility treatment. The app considers the woman's age, AMH level, and severity of infertility based on the public funding scoring system.

Here is an example for a woman aged 35, with a typical AMH level, using ICSI, where her partner has moderately severe male infertility.

CHANCE OF HAVING A BABY



Here you will find stories our patients have chosen to share with you about their experiences with fertility treatment, the impact on their lives and the different ways they coped with treatment. These stories are written by them and are unedited – they are in their own words...

IN MY OWN WORDS

Our colourful journey

"Everyone at Fertility Associates was trying their best to help us – constant reassurance, answering all our questions, no matter how dumb it may have sounded, and giving us that warm smile when another cycle did not work."

One family discovered that their quest for another baby made them better and stronger, regardless of the outcome.

KIA ORANA and greetings.

If you are reading this, you are sitting where we were many years ago, seven to be exact.

Before I get ahead of myself let me share with you who we are. I am of Cook Island descent from a large family. I was brought up by my paternal grandparents in Tokoroa. University educated and career minded. My Pakeha husband was born in Te Awamutu and is from a small family. Our son was born 11 years ago, conceived naturally and without difficulties. We never thought we would have fertility issues until our boy was three years old. After a number of attempts, herbal medicines, medical checks, pleas to the wider family for a baby/child in the Cook Islands and New Zealand and starting the adoption process. We finally knew something was up. The issue sat with me for two reasons:

1. I was overweight
2. I was not firing at the right time (not sure what the right term was)

The husband was relieved about his manhood he said. When I finally got my head in the right place and lost close to 10kgs, we tried again in 2010. Success came our way because:

- We focused on living life as individuals/ couple and a family.
- Knowing that every one at Fertility Associates was trying their best to help us get pregnant. This was demonstrated in their constant reassurance, answering all our questions, no matter how dumb it may have sounded to our ears, and giving us that warm smile when another cycle did not work.

In September after another failed attempt we both agreed October would be our last attempt. We are now four months along in our pregnancy. I do not know who is happier, our son who will now have a sibling, us for sharing our love again, our parents and wider family who have been waiting years for another angel to join our family, or Fertility Clinic staff who have been on that journey with us.

To you we give our love and understanding as you take this emotional journey. As individuals and a family we have come out as better persons and a stronger family. Life never ended when we were told I had the fertility problem, it just got more colourful along the way.

Kia Manuia.

Our Pathway...

AGE & LIFESTYLE

- Age and you
- Eating well for fertility
- Tips for fertility fitness
- Centrefold for men

Age - hers and his

While age is an undeniable factor, there are ways to enhance your fertility and chances of conceiving.

Her

You can't escape the subject of a woman's age when it comes to understanding fertility. The chance of pregnancy falls with a woman's age, especially after the age of 35, and virtually disappears by the age of 45. This is equally true for people who have no fertility problems and for people who need to use fertility treatment. The only way to overcome the impact of age is to use a younger woman's eggs in donor egg treatment.

The biological reason behind this age-dependent fall in fertility is only partly understood. Women are born with all the eggs they will ever have. By the time of their first period, the number of eggs in the ovaries has already fallen from a few million to around 300,000; by the mid-30's the number is down to 30,000 and by menopause it is less than 1000. Obviously the quality of the eggs is falling too, but scientists don't know whether eggs accumulate damage over the decades or whether better eggs are selected for ovulation when a woman is younger.

Unfortunately advancing age also increases the chance of miscarriage. Pregnancy loss after a positive pregnancy test jumps from 25% under the age of 35 to 50% by 45. For this reason, we present success rates in this magazine and on our website as birth of a child, not a positive pregnancy test or clinical pregnancy seen at an 8 week ultrasound scan.

Age impacts a third way. The chance of abnormalities like Down Syndrome rise sharply in older women, from about 1:170 pregnancies at the age of 35 to 1:11 by the age of 45.

It is possible to screen for fetal abnormalities using a blood test and scan around 12–13 weeks of pregnancy and to use Chorionic Villus Sampling (CVS) or Amniocentesis to confirm a diagnosis in those with a higher risk from the screening result. Screening is free, as is CVS or Amniocentesis for those at higher risk.

Non-Invasive Prenatal Testing (NPT) is a new screening test that looks at the baby's DNA in the mother's blood at around 10 weeks of pregnancy. An abnormal test should be checked by CVS. NIPT screening is user pay.

See our Fertility Facts on CVS and Amniocentesis. www.fertilityfacts.co.nz

For some women the effect of age kicks in early. About 10% of women experience menopause 5 years earlier than average – around the age of 45 instead of 50 – and their fertility starts to decline 5 years earlier than average. About 1% of women go through menopause 10 years earlier than average, so they lose their fertility by the age of 35 instead of 45. Anti-Mullerian Hormone (AMH) test may give prior warning about the possibility of early menopause, although the prediction it gives is not definitive.

See our Fertility Facts on AMH and ovarian reserve. www.fertilityfacts.co.nz

Him

Men don't have an equivalent to menopause, although the number of sperm made each day and their quality do fall with a man's age. A man's age does not seem to affect the change of success in fertility treatments such as IVF, at least up to the age of 50. Pregnancies from older men do show more types of abnormalities among children – such as schizophrenia and autism.

Overseas studies show the risk of genetic abnormalities increases with the age of the biological father, so that the total risk of a child having a serious birth defect (from the biological father, the mother, or newly arising in the child), increases from an average of 20 per 1000 children for men aged 20, to 26 per 1000 children for men aged 50. The age of the mother is more important than the age of the biological father.

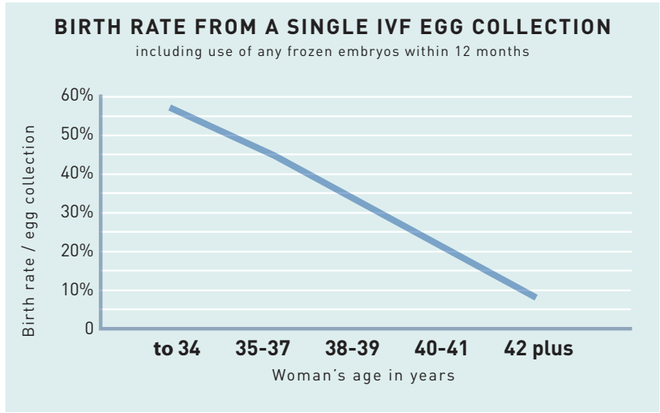


Figure 1.

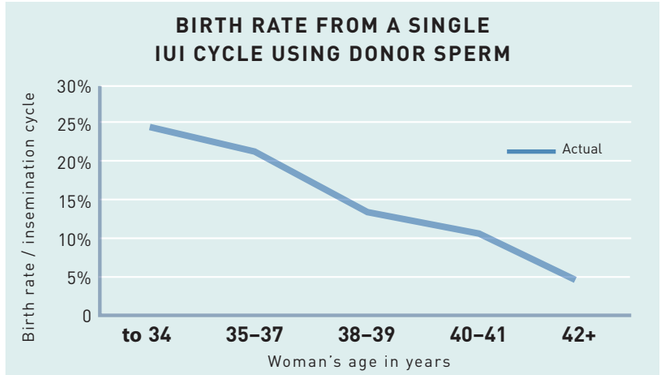


Figure 2.

The above shows two graphs – one is the chance of a child from a single cycle of IVF treatment at Fertility Associates and the other is the chance of a child from a single cycle of IUI with donor sperm in a natural cycle without any medications. This type of IUI mimics the results from natural conception in fertile couples.

At every age IVF has a higher success rate because several eggs are collected and the best embryo is selected for transfer, but the relative decline with age is similar for both. By age 39 the rate has halved compared to 30, and by 44 it is about one tenth.

Fertility - food and the environment

Fertility Associates' dietitian Alice Gormack and scientist John Peek have been following the latest research.

Alice's top 10 nutrition tips for fertility

Sperm and eggs both take around 3 months to develop and mature. This is an ideal time to have a fresh look at your nutritional intake and lifestyle and make sure you are doing all you can to optimize your fertility chances. We know a poor diet can reduce pregnancy rates by around 20% while following a Mediterranean-style intake can potentially increase pregnancy rates by around 20%.

1. Mediterranean-style food intake

Definitely our #1 tip! Not only is a Mediterranean-style intake good for fertility, it is also beneficial for your heart and other conditions too (e.g. endometriosis and PCOS). There are now many studies which show that a Mediterranean-style intake increases the chance of pregnancy after IVF treatment and reduces the time to achieve pregnancy in people who conceive naturally.
Nutrition tips #2-8 essentially walk you through how to follow more of a Mediterranean-style intake so let's dive in.

2. Get your 7+/day of fruit and vegetables

Include at least two pieces of fruit each day, whichever fruit you like to eat. Fruit is a great snack between meals and is an ideal substitute when you are looking to cut down on high sugar foods or sugary drinks. Make sure to include lots of colourful vegetables with your main meals; these help to give you fertility-friendly antioxidants as well as fibre to support a healthy gut. The recommendation for vegetables is now over 5 handfuls every day but any increase in vegetables is a good start. Wash all fruit and vegetables thoroughly and peel if necessary. Frozen, canned or fresh fruit and vegetables are all nutritious choices.

3. Eat oily fish 2/week

"Oily fish" refers to salmon, tuna, mackerel, sardines and mussels. These are our main source of long-chain omega-3 fats. These fantastic anti-inflammatory fats are important for our overall health and also potentially help with pregnancy rates in IVF. Canned fish is an excellent cheaper substitute for fresh fish.

4. Use the right fats

Use liquid plant oil such as extra virgin olive oil for cooking, and a plant-based spread instead of butter. Include 30g of mixed raw nuts each day; these are excellent for overall health and male fertility. Healthy fats include nut butters, olive oil, avocado, nuts and seeds. Lower your intake of more harmful saturated fat (animal fat) by cutting back on takeaways, pies and pastries, processed snack foods (crisps, lollies, chocolate), meat fat, chicken skin, coconut products, butter and high-fat dairy products like cream and ice cream.

5. Go grainy with wholegrain carbohydrates

Not all carbs are created equal; changing from highly processed white carbs to higher-fibre browner carbohydrates is a simple and worthwhile switch. Wholegrain carbs fill you up for longer and help feed the good bacteria in your gut. Go for grainy brown bread and cracker varieties, choose a high fibre breakfast cereal, use brown or wild rice as an alternative to white, and experiment with cooking wholegrain carbohydrates like quinoa, freekeh or farro.

6. Include calcium rich foods

We see people every single day who are not meeting their calcium requirements. Calcium is important for building and maintaining bone health, while dairy products appear important for ovulation too. Include 2½ servings of dairy products each day and make sure to choose a plant-milk with added calcium if you avoid cow's milk for any reason. Yoghurt is a fantastic snack or dessert with good levels of protein and lots of calcium.

7. Add in some plant proteins

It is not just vegetarians who reap the nutritional benefits of plant proteins like beans, legumes, lentils, and tofu. These are excellent sources of protein, fibre, and wholegrain carbohydrate.
It is great to see many New Zealanders having a vegetarian meal each week or using half-animal and half-plant proteins in some of their favourite dishes.

8. Limit foods that may decrease fertility

It is good to cut back on high-fat, high-sugar processed foods for both fertility and overall

Chemicals and the environment

In the western world we are exposed to over 40,000 artificial chemicals in our homes and workplaces, in our air, from our clothes, from our food, our soaps and cosmetics. Most won't affect fertility, but there is increasing evidence that some do, and we should try to reduce exposure to these chemicals. Some chemicals reduce the chance of becoming pregnant, others can have adverse effects on the baby's development in the uterus which may last for the rest of his or her life.

Pesticides and herbicides
These are potent chemicals that are designed to kill insects and plants. If you do gardening or work on a farm, follow the instructions carefully, wear gloves and wash gardening clothes often. One study in the USA showed lower pregnancy rates in people who ate more fruit and vegetables, all because of toxic residues. Going organic will bypass these chemicals, but washing fruit and vegetables is equally effective and cheaper.

Environmental estrogens
Estrogen is one of the most potent hormones around – active at about one tenth to one hundredth the concentration of other types of hormones such as progesterone or androgen. Many natural and artificial chemicals, such as parabens, phthalates, bisphenol A (BPA) and polychlorinated biphenyls (PCB) have weak estrogenic activity. These chemicals are added to many plastics to improve their physical properties such as flexibility – think drink bottles, plastic food wrap, till receipts. They can end up in food, and their presence in men and women has been correlated to sperm quality, embryo development and the chance of pregnancy in IVF. Animal studies suggest some of these chemicals have epigenetic effects, which means the changes they induce in the parents can also be seen in
their children. Environmental estrogens may be one of the causes why sperm concentration appears to have fallen in many countries over the last 70 years - not through an effect on adult men, but on the male fetus when its testes are developing before birth.

Cosmetics and toiletries

Much less studied but potentially important are chemicals in cosmetics, toiletries and hair care products (including dyes) because of the length of time of the body is exposed to them, and ease with which some chemicals are absorbed through skin.

Exercise

Several studies have looked at the effect of exercise and diet on woman's and men's fertility. As for health in general, moderate exercise is beneficial, especially for women with Polycystic Ovarian Syndrome (PCOS). Vigorous exercise for more than an hour a day increases the risk of disrupting a woman's menstrual cycle, which may in turn interfere with her response to IVF medication. Some studies have shown better semen quality with exercise, and reducing obesity is also known to be good for sperm quality. Several studies have shown that cycling for several hours a week or endurance exercise is associated with lower sperm concentrations.

health. Keep foods like biscuits, potato chips, chocolate, and snack bars to the occasional small snack rather than something you include regularly. It is also a good idea to reduce your intake of processed meats like ham, salami, jerky, bacon and sausages. Keep red meat to around 1-2 servings per week, choose leaner cuts and remove visible fat before cooking. Takeaways often have a high level of saturated fat and minimal vegetables; swapping from deep-fried takeaways to a dish containing vegetables, protein and smaller amounts of carbohydrate is a good start (e.g. stir-fry on rice, sushi, kebab with salad). As discussed in tip #9, keep sugary drinks, caffeine and alcohol low while undergoing fertility treatment.

9. What to drink?

Water and reduced-fat milk are the best drink choices. Regular tap water is a safe and healthy choice. Drinking one or more sugary drinks per day may decrease fertility for both men and women so keep these to a minimum and choose sugar-free options where possible. Keep fruit juice minimal too as it contains similar levels of sugar to fizzy drink.

Caffeine and alcohol have been shown to reduce fertility in some studies. We recommend reducing coffee intake to 1-2 per day. Be mindful of other caffeine sources too; energy drinks are very high in caffeine while tea, green tea, cola and kombucha can still contain significant amounts. A low alcohol intake does not appear to reduce the success of fertility treatment, such as 1-7 standard drinks per week with no more than 2 drinks in one session. Avoid all alcohol after embryo replacement; there is no 'safe' level of alcohol intake during pregnancy.

10. Take appropriate nutritional supplements

Aim to get most of your vitamins and minerals from your food by eating a good variety of different foods each day. Women require folic acid when trying to conceive; the Ministry of Health recommends 800 micrograms of folic acid a day for at least a month before fertility treatment and for the first three months of pregnancy. Some women will require a larger 5mg daily dose of folic acid so talk with your GP, fertility doctor or dietitian about what amount is right for you. Taking 150 micrograms of iodine is recommended throughout pregnancy and breastfeeding. You can take folic acid and iodine as prescription supplements or choose to take a combined prenatal nutrition supplement. Check for adequate amounts of folic acid and iodine if you take a prenatal multivitamin as you may still need additional folic acid.

Other nutritional supplements such as vitamin D, fish oil, CoQ10 or iron may be recommended during fertility treatment. Whether any of these (or other supplements) could be beneficial for you depends on your dietary intake, age, fertility issues, and test results. Speak with your dietitian, GP or fertility doctor for further information. It is important to only take evidence-based nutritional supplements to reduce the chances of any negative effects on your fertility.

Go and get started!

So there you have it, the top 10 nutrition tips to optimize your fertility. It can be helpful to focus on 2-3 small changes each week as stepping stones to a more fertility-friendly food intake. Remember too that these are general tips; for personally tailored nutrition and lifestyle advice it is best to book an appointment with a specialist fertility dietitian. For further information about a nutrition appointment with our own Fertility Associates specialist dietitian Alice Gormack please visit www.conceivenutrition.co.nz or email our reception team at FAAReceptionGroup@fertilityassociates.co.nz.

Tips for him

Don't smoke or do drugs
- Smoking and some recreational drugs can reduce sperm quality.

Reduce alcohol
- Limit your alcohol intake to 20 units or less a week.

Have a normal BMI
- Keep active and stay slim. Obese men have sperm counts on average 22% lower when compared to their slimmer counterparts.
- Have a body mass index (BMI) lower than 28.

Keep testes cool
- Wear boxer shorts, not briefs. This helps the testes to keep cool.
- Men in sedentary jobs can have poorer quality sperm because their testes are more prone to heating up. Keep your laptop off your lap!
- Don't have a hot bath, sauna or spa too frequently.
- It may be good to keep mobile phones away from the testes too.

Have a healthy diet
- Eat a diet with lots of healthy antioxidants. Foods rich in antioxidants can reduce the damage that chemicals called free radicals can have on sperm.
- Antioxidants are found in fresh vegetables, fruit, nuts, seeds, green tea and dark chocolate.
- Health supplements, such as Menevit, containing antioxidants such as Vitamin C and E may help to improve sperm quality.

Medication
- Discuss all your medications with your doctor.

Tips for her

Aim for a health body weight
- A body mass index (BMI) in the range of 20-25 is associated with a healthier and safer pregnancy outcome for you and your baby
- Eat nutritious foods and keep active each day.
- Pregnancy in overweight women is associated with problems such as diabetes and high blood pressure.

Don't smoke or do drugs
- Smoking halves the chances of conceiving each months and can also double the chances of miscarriage.

Take the right nutritional supplements
- Take a folic acid supplement when trying to get pregnant and for at least the first 12 weeks of pregnancy.
- Folic acid can help reduce the chances of spina bifida by up to 92%.
- Iodine supplementation is required from a positive pregnancy test all the way through pregnancy and breastfeeding. You are welcome to take iodine while trying to conceive or undergoing fertility treatment. Using iodised table salt rather than other salt varieties is also a good idea.
- Avoid taking supplements containing the retinol form of vitamin A while undergoing fertility treatment or while you are pregnant.

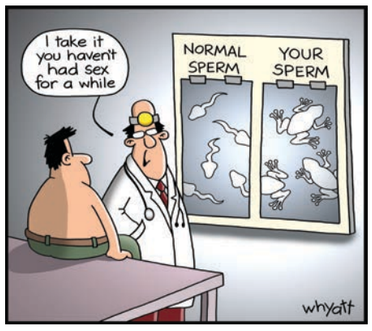
Reduce alcohol and caffeine
- Caffeine may reduce your chances of conceiving so have 1-2 caffeinated drinks maximum per day.
- There is no safe limit of alcohol during pregnancy so it's best avoided.

Medications
- Discuss all medications with your doctor.

Rubella
- Make sure you have had rubella immunization. Rubella can damage unborn babies.

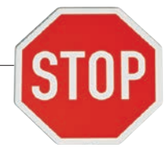
Chicken pox
- Find out if you have had chickenpox. If not, consider immunization.

Further nutritional information can be found at the following websites: www.health.govt.nz, www.nutritionfoundation.org.nz, or www.heartfoundation.org.nz



Essentials for men

Guys, thank you for your attention! When we piloted this magazine we found 70% of men didn't read any of our patient information. Their partners said they were a great support, but obviously not when it came to being well informed. While this section is not a substitute for the full monty*, we hope it will provide some useful shortcuts.

Subject and where to find it in this magazine	Crib sheet*
Hormones and medications, page 16	Just look up the table on page 16 to see what's what
Types of treatment, page 20	Basically, there are four types of treatment: wait for nature, use a fertility pill called clomiphene or letrozole, intra-uterine insemination (IUI) and in vitro fertilisation (IVF). IUI has the option of using donor sperm (DS). IVF also gives the options of using donor sperm, donor egg, or surrogacy (donor uterus). 
Importance of age, page 26	A woman's fertility falls significantly from the age of 35, and virtually disappears by the age of 45. Fertility treatments such as IVF can't overcome the effect of a woman's age – only using someone else's eggs (donor eggs) can do that. Up to the age of 50, a man's age does not seem to affect the success of fertility treatment. Calculate your chances of a baby now and in a couple of years time using the biological clock on the FA website, or on www.biologicalclock.co.nz
Lifestyle, page 31	Read the 6 'tips for him' on page 31. There is increasing evidence that men smoking, being overweight, and/or not having enough antioxidants in their diet can reduce the pregnancy rate in IVF and probably other treatments too. Lots of men are now taking Menevit which contains a combination of antioxidants. 
Emotional support, page 34	Fertility treatment can be an emotional roller coaster, and men and women often react differently. Guess who wants to talk and who prefers to bury themselves in work, retreat to the 'man cave' or something similar. The box at the bottom of page 35 has practical tips for partners, and so does the box on page 43. 
Counselling, page 36	Sadly a lost cause for most men. BUT we wish we got a dollar every time a man says 'wish I'd done that sooner'.
Semen tests, page 40	Nearly every man will need to do a semen analysis as part of fertility diagnosis. A test for DNA fragmentation in sperm is also becoming common. Have a look at our Fertility Fact sheet on Male infertility and semen tests on our website or on www.fertilityfacts.co.nz
The problem with tests	As part of your fertility investigations, your doctor will select what tests to do based on the chance of a particular test picking up something useful. Fast forward to a review consultation with your doctor if you have not become pregnant after 2 or 3 courses of treatment. The doctor says, 'Let's do some more tests', and one of the tests shows something up. You may wonder 'why didn't the *!@#* doctor do that test in the first place?' If you are the sort of person who thinks, 'I'd rather do all the tests at the beginning despite their cost and despite a low chance of some of them being useful' – then please tell your doctor at your first consultation. You and your doctor need to be on the same page. The diagram on page 40 illustrates the relative costs of various tests and the chance they will pick something up.
The law, page 44 **Consent, page 45**	You need to give written consent to the use or disposal of your sperm and any embryos created using your sperm. If you want to store sperm or embryos created from your sperm, for more than 10 years you will need to apply to the ethic committee for an extension before the 10 year anniversary of storage comes up. When embryos are created using frozen sperm, the 10 year period starts when the sperm was frozen. We won't start treatment until we have received the signed treatment consent form. Your consent form records the important decisions that you have made about that cycle or course of treatment, as well as giving us permission to go ahead. 
Potential problems with treatment **Clomiphene, page 48** **IUI, page 52 and IVF, page 67**	About 10% of cycles are stopped before completion for one reason or another. This is not a total loss because we usually learn something useful for your next cycle. But it is always a disappointment at the time.
Risks and side effects, page 67	Men have it easy unless they need surgical sperm retrieval (SSR) from the testis. If you are having SSR, you must read about the risks and side effects on pages 69–70 it is only half a page long. We have further information on sperm microinjection and surgical sperm retrieval in a Fertility Fact sheet.
Paying for treatment, page 81 **Also see our separate fees guide**	For simpler treatments such as Clomiphene or Letrozole, IUI and using thawed embryos, we invoice at the beginning of the cycle and require payment before treatment finishes. For IVF, we invoice in three steps - when we issue the medications, before egg collection and embryology, and before embryo transfer. 
Sperm sample **IUI, page 58** **IVF, page 84**	Pretty much the same for both treatments. We'll tell you when we need it. You can produce it at home or in the clinic. It is best if we receive it within 60 minutes of production. One to two day's abstinence prior is best. Follow the instructions on the semen analysis form that comes with the pot. When you drop off your sample, give us a telephone number in case we need to contact you and write your name on the form and the pot! (We're not joking – some men forget.) If you are concerned about being away or possibly having difficulty on the day – discuss this with us well beforehand so you can consider banking sperm as a backup. 
The hardest part, page 85	In case you haven't guessed, it is waiting for the pregnancy test. Re-read the boxes at the bottom of page 35 and on page 43, and the section 'Waiting for your pregnancy result' on page 85, and be gentle on yourself and your partner.
Using a donor (sperm, eggs, embryos or surrogacy), page 102	Sorry, there are no short cuts. Using donor sperm, eggs, embryos or surrogacy brings an extra level of complexity – sometimes technically, emotionally, legally and in bringing up children. However, we will lead you through the issues (and you don't have a choice because counselling is mandatory).

salve Our patient app

Salve is your treatment guide on the go and keeps all your fertility information in one place. The Salve app shares medication and appointments with both partners. So you can stay in touch and support your partner at key stages.

The emotional roller coaster – navigating the ups and downs

This section is for partners and support people and is aimed at offering some tips on how best to help your partner, friend, daughter or son as they journey through treatment.

Having treatment alone

Fertility treatment is generally intense and often complex. Being alone may mean remembering a lot and often coping with the effects of treatment and its outcome by yourself. Many women find the following to be useful:

- Bring someone you trust to appointments even if they sit in the waiting room.
- Debrief with them while the information is fresh in your memory.
- Keep a journal to know where you are up to.
- Alert a support person when you feel you may be getting bad news.
- Use the clinic counsellors.

MANY PATIENTS have likened fertility treatment to a roller coaster. The emotional ups and downs as you and your partner or support person travel through treatment, can impact on not only your relationship, but every aspect of your life.

Many partners feel that they do not have any sense of control over what is happening to their loved one. They sit by and watch as she goes through a series of scans, blood tests, injections, more scans, more blood tests, egg retrieval, embryo replacement and the long wait for the pregnancy result, while at the same time trying to carry on with some semblance of a normal work and home life.

IVF treatment in six quick steps

At right is a chart that provides you with a brief overview of what happens at each stage of treatment and the common emotional response of patients at this time. We hope that it will enable you to better understand what is going on during each phase of treatment. You may also find our section 'Step-by-step through IVF' page 80 a valuable place to find more information.

Generally, IVF takes 2 to 6 weeks to reach embryo transfer and then another 2 weeks until a pregnancy test can be done and the outcome of the treatment is known. In some cases, treatment may be stopped midway through the cycle due to a poor response to the fertility medications or a concern about the way the cycle is proceeding.

Timeline	Phase of treatment	Emotional state
Month before	Following the first day of her period, the woman may sometimes start pill-based medication and in some treatment protocols also start injections.	Calm and optimistic but anxious about what is to come. Some people may feel excited that treatment is finally underway after a long wait.
Weeks 1 to 2	Usually daily injections. This is also the time when many blood tests and scans will be done.	Anxiety is starting to rise, but patients are still optimistic about treatment as they are still actively involved in the process. This is also a time when the hormone medications can cause huge mood swings and tiredness. Patience is essential at this stage.
Weeks 3 to 4	Egg collection, fertilisation, and embryo development.	High anxiety, and high focus on the number of eggs retrieved and the number fertilised.
The two week wait	Wait for pregnancy blood test which is done on day 14 after the egg collection. This will indicate whether you are pregnant or not.	High stress and very emotional time. Most international research quotes this as the period when patients experience the highest levels of stress. See page 96.
Pregnant or not pregnant	Pregnancy result is received. See our section "What happens now?" for more information.	If the result is a negative pregnancy test, this can be a time of disappointment and even depression. However, if there is the opportunity to continue with another course of treatment, patients may feel a little bit more positive. If the pregnancy result is positive, this may still be a time of high anxiety as you wait to see if the pregnancy is ongoing.

Ways in which you can offer support

For partners

- Organise something indulgent for your partner who is going through treatment.
- Help remind them when injections or medications are to be taken.
- Offer to help with their injections.
- Come to as many appointments and scans with them as reasonably possible.
- Respect each other's privacy with regards to treatment. Perhaps decide who you are going to tell and what you are going to tell them before treatment starts; you may not want the world to know. It is also important to think about how many people you will have to tell if treatment is not successful this time.
- Don't pack the household calendar with too many social events.
- Ask them what you can do to help.
- If you already have children, remember the fertility medications may make your partner extra tired and possibly not as even-tempered as normal!
- Perhaps organise some extra help around the house.
- But most importantly, remember you are doing this together and your relationship is the most important thing.

For family and friends

- Ask them what you can do to help.
- Respect their privacy – don't tell everyone what your son, daughter or friend is going through.

For a glossary of common terms used in fertility treatment, please see our section 'Understanding fertility language' page 13.

Counselling and support – a better understanding

Having difficulty conceiving can mean 'getting pregnant' becomes the most important goal in life.

THE INTENSE desire to continue pursuing this goal, and the depth of the pain experienced on this journey, is often underestimated.
One free consultation with a clinic counsellor is included with most treatment options.
Take this opportunity to:

- Gain a better understanding of the range of emotional responses to infertility and its treatment.
- Explore and enhance your existing coping responses, before, during and after treatment so you feel more in control.
- Better understand the implications of your treatment decisions and consider your options.
- Learn about your partner's responses to treatment and strategies to strengthen your communication and relationship.
- Find out how friends and family can support you and learn strategies to deal with their questions.
- Gain support to manage difficult situations such as friends' and relatives' pregnancies.
- Learn how to deal with negative results and planning for what next.
- Get support for pregnancy loss.
- Explore the implications and issues around using a donor.
- Decide whether to stop treatment.

When should you use counselling?

- Anytime – before, during or after treatment – sooner is better than later.
- When you want to explore any of the issues mentioned above.
- If you are feeling sad, anxious or so preoccupied that it is hard to enjoy life.
- When you are feeling stuck and need to discuss future options.
- If you are considering involving a donor.
- When you want to share your concerns with an independent person.

What can help me now?

- Get the information you need. Read; contact clinic staff; join the consumer organisation FertilityNZ; talk to others with similar experiences.
- Take up a form of relaxation, try meditation, massage, Tai Chi, yoga, walking, creative activity, listening to music…
- Keep a journal of how you feel.
- Have enjoyable things to look forward to.
- Find time for yourself and your partner.
- Look after yourself; strengthen yourself with healthy eating, regular exercise, fresh air and sufficient sleep.
- Talk to someone you can trust.
- Book a consultation with our counselling team.

If you are feeling very stressed or anxious try the following:

- Reassure and remind yourself that these feelings will pass.
- Sit down or rest and try to slow your breathing down (breathe in for 3 seconds and out for 3 seconds) and say the word "relax" on each out breath. Repeat this until you feel more relaxed
- Try to distract your mind from anxious thoughts – focus on your senses: What can you see? What can you smell? What can you feel? What can you hear? What can you taste?
- Make an appointment to see a counsellor.

Some people are resistant to seeing a counsellor, but one of the most common comments on our patient feedback questionnaires after treatment, is how valuable it was seeing a counsellor and "I wish we had seen the counsellor earlier". Why wait? Book an appointment now.

FertilityNZ

FertilityNZ is New Zealand's support organization for people experiencing infertility. Look at their services on the inside back cover of this magazine.

See our Recommended Reading list on our website www.fertilityfacts.co.nz

GETTING PREPARED

- Becoming fertility fit
- Seeing a doctor
- Your action plan
- Ways to de-stress
- Laws and consents

Getting prepared

Having a general health check with your own GP is a good idea before you start any fertility treatment.

Seeing a doctor

Before starting any treatment you will have a fertility consultation with one of our doctors. He or she will go over treatment options, costs, any ethical issues, eligibility for publicly funded treatment and probably organise further tests – usually blood tests and often a semen analysis. Your doctor will also assess any risks you might have, such as contraindications to some types of medication. You may need a follow-up consultation in two or three weeks to review results of these tests and before deciding what treatment you will start with. Your doctor will get back to you about any test results that are not normal or are unusual; they probably will not contact you about each normal result.

For more information on publicly funded treatment and eligibility, see page 122.

Your doctor's nurse will go over the practical aspects of treatment. Sometimes this is done straight after the doctor's appointment but often it is better to book a separate time.

Many people find the first consultation pretty overwhelming – there is a lot of new information to take in while you are in a heightened emotional state. You might want to write down beforehand any questions you have. Also, feel free to write notes during the consultation – and ask the doctor to slow down if you need to catch up, or if you are unsure what he or she is saying. If you do not understand something, please ask them to explain.

Your action plan

Your doctor will map out an action plan for you – what treatment to start with and when you want to begin treatment.

A lot of people find it valuable to keep all the information about their fertility journey in one place – the doctors' letters, patient information like this magazine and treatment timetables. We'll give you a handy storage box for this and there is a 'Notes' section at the back of this magazine for you to record instructions.

General health check

Some people have medical concerns that need to be considered when planning a pregnancy, such as diabetes or a heart condition. We strongly advise you to have a general health check with your GP before starting fertility treatment and to disclose any medical condition to your Fertility Associates doctor. Your Fertility Associates doctor will focus on your medical history related to the chance of becoming pregnant which may not cover the same aspects as a general health check from your GP. Please ask your GP to send a copy of your most recent cervical smear result to your Fertility Associates doctor. Cervical screening can detect early pre-cancerous changes that should be treated before IVF.

It is important to remember that although your doctor will be overseeing your treatment, you may not see your doctor at every scan or procedure during treatment.

Fertility tests

- **Rubella** (German measles) We want you to be immune to Rubella before starting treatment because Rubella can cause birth deformities.
- **Vaccinations** Please visit our website for the latest advice on vaccinations. You can also find expert advice on The Ministry of Health and The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) websites.
- **Varicella** (Chickenpox) If you haven't had Chickenpox or can't remember whether you have, then we will suggest you are vaccinated. Infection during pregnancy can harm your baby. There is a stand down period of one month between vaccination and trying to become pregnant.
- **Blood count and blood group** These can identify potential health problems and also give baseline information in case you develop any OHSS symptoms after IVF treatment.
- **Hepatitis B and C** We screen both men and women for these viruses to minimise the risk of hepatitis being transmitted to a child. We also want to prevent contamination of laboratory equipment.
- **HIV** We test both men and women for HIV because special precautions should be taken if treatment is considered. The test detects antibodies to the HIV virus, so a negative test does not absolutely eliminate the possibility of infection. The Ministry of Health recommends screening for HIV, Hepatitis B and Hepatitis C for all women planning pregnancy.

We have a Fertility Facts information sheet on HIV testing. Before having an HIV test you may wish to see a counsellor to consider the implications of the test results. The cost of HIV counselling is not included in the cost of treatment. www.fertilityfacts.co.nz

To test or not to test..

Your doctor will suggest which tests to do based on the chance of a particular test picking somethng up at that stage of your fertility journey. If you would prefer to do more tests at an earlier stage despite their cost and a low chance finding anything – then please discuss this with your doctor. You and your doctor need to have the same approach.

Tests	Usual approach	Chance of the result influencing your treatment	Cost of the test	Invasiveness of the test
• Semen analysis and sperm antibodies • AMH test of ovarian reserve	Done initially for nearly everyone. AMH when IVF is considered.		$	
• Strict morphology of sperm • Trial sperm wash • DNA frag test (SCSA) on sperm	Done initially if there is an indication. Otherwise, we may suggest tests at various stages if you do not become pregnant following treatment. Some people may want to do some tests earlier – ask your nurse or doctor.		$	
• Hysteroscopy * • Saline scan of the uterus			$ $	
• Laparoscopy and hysteroscopy of the abdomen, Fallopian tubes and uterus *			$ $ $	
• Karyotype to assess chromosomes **			$ $	

* Sometimes covered by private health insurance ** Publicly funded if there is an indication for the test

Dark green	Represents the chance of the result influencing treatment
$	$100-250
$ $	$500-1000
$ $ $	$5,000 or more
	Blood test or semen sample
	1-2 hours in the clinic, sedation
	General anaesthetic

Understanding fertility tests

Ideally fertility tests would be very cheap and easy, so you'd do them all before considering treatment. In reality, the cost, the invasiveness, and the chance of finding anything varies between tests. Your doctor will suggest which tests to do based on the chance of a particular test picking something up at that stage of your fertility journey. If you would prefer to do more tests at an earlier stage, then please discuss this with your doctor. The table above may help you decide your approach to various tests.

• **FSH, LH and AMH hormones** We use your levels of FSH, LH and Anti-Mullerian Hormone (AMH) to help decide the dose of medications used to stimulate the ovaries. Your AMH level can also give you a good idea about the number of follicles to expect from ovarian stimulation in IVF.

See our Fertility Facts on AMH and ovarian reserve www.fertilityfacts.co.nz

• **Semen analysis** A semen analysis is the main test to assess male fertility, although it is not perfect. Results from a semen analysis often determine which treatments are technically appropriate. Even if you have had a semen analysis done elsewhere before, we often ask for an analysis in one of our labs because our embryologists are good at picking up subtle signs of sperm quality that can be missed by Community Labs. We also test for sperm antibodies which is not done by Community Labs. Sometimes we recommend a trial sperm preparation to check whether enough sperm can be isolated for treatment.

• **Sperm DNA fragmentation** (SCSA test) There is growing evidence that some men have higher levels of DNA damage in their sperm that may reduce the chance of pregnancy or increase the chance of miscarriage.

See our Fertility Facts on Male Fertility and Semen Tests. This information sheet discusses the variation in semen quality and the reliability of tests.

Genetic Carrier Screening

This screening detects 90 to 95% of people who are carriers for conditions such as Cystic Fibrosis (CF), Spinal Muscular Dystrophy (SMA) and Fragile X (FXS). These are the most common genetic disorders in New Zealand. The test is free if you have an affected person in your family, otherwise it is user pay. Many people choose comprehensive carrier screening of CF, SMA, FXS and about 300 other less common conditions through Invitae for a similar cost. Our website has information about the possible impact of genetic screening on health insurance cover.

Backup sperm

If you are concerned that you might be unable to produce a semen sample on the day of IUI or IVF treatment or that you might be away, we can usually freeze a backup sample. You need to arrange this well in advance so we can see how well your sperm survive freezing and thawing. There is a separate charge for sperm freezing unless it is needed for medical reasons as part of a publicly funded treatment. If you are having IVF with frozen backup sperm, we suggest you consider using ICSI to maximise the fertilisation rate of the eggs.

Sperm will only be frozen if you request this service and complete a consent form for sperm freezing.

Becoming fertility fit

You will want to have the best chance of becoming pregnant. As well as the Fertility tips for men and women on page 31, we have some more specific advice.

• **Smoking** Don't, or stop well before treatment! Cigarette smoke halves the chance of conception in IVF treatment, and probably does the same for other treatments. Smoking acts by reducing the number and the quality of the eggs that develop in the ovaries, and may reduce blood flow to the uterus. Miscarriages are more likely in women who smoke.

Nicotine patches and vaping have some of the biological effects of smoking. Before anyone starts publicly funded treatment, they must have stopped smoking, vaping, and not be on nicotine patches for at least three months.There is some evidence to suggest that tobacco may affect sperm production and quality, and increasing evidence that second-hand smoke from others is also bad.

• **Caffeine** Caffeine can come from many sources - coffee, tea, cola and especially energy drinks. Recent studies suggest that drinking 1-2 cups of coffee a day does not reduce the chance of pregnancy using IVF. Higher levels may be detrimental.

• **Alcohol** Drinking 1-7 standard drinks a week is probably not detrimental to the chance of pregnancy, but we recommend no alcohol after embryo transfer since the negative impact of alcohol on fetal development is well known.

• **Soda drinks** There is some evidence that drinking sugary fizzy drinks may reduce fertility - probably due to the sugar, since diet soda may not have the same effect.

• **Weight** Being overweight can mean you need more medications to stimulate the ovaries, or may reduce your response to even high doses of the medications. Fortunately, even a relatively small loss in weight (often just 5-6 kg) with some exercise can be very beneficial.
There is some evidence that men being overweight can reduce sperm quality and the chance of pregnantancy using IVF or ICSI.

• **Medications** Some medications may interfere with fertility or treatment, so please tell us what medication you are using.

Our colourful journey

"In September after another failed attempt we both agreed October will be our last attempt. We are now four months along in our pregnancy. I do not know who is happier, our son who will now have a sibling, us for sharing our love again, our parents and wider family who have been waiting years for another angel to join our family, or Fertility Clinic staff who have been on that journey with us.
To you we give our love and understanding as you take this emotional journey. As individuals and a family we have come out as better persons and a stronger family. Life never ended when we were told I had the fertility problem, it just got more colourful along the way. Kia Manuia."

There is no evidence that having sex after embryo transfer in IVF interferes with the embryos that have been transferred – so if you feel like it, go ahead! One study even showed a higher pregnancy rate.

Particularly important are tranquillisers such as Stelazine or Haloperidol, medications for migraine and some medication used for inflammatory bowel disease or high blood pressure. Androgens, testosterone and anabolic steroids can have a strongly negative effect on sperm production, which can last for many months.

- **Drugs and sperm quality** Narcotics, tobacco, marijuana, or heavy alcohol use may impair sperm production in men. Sperm production can drop for up to three months after the flu or a high fever, so please tell us if any of these apply to you.
- **Folic Acid and vitamins** Folic acid can prevent up to 92% of cases of neural tube defects such as spina bifida in babies. It may also be helpful for the epigenetic changes that the egg undergoes during maturation. We encourage all women wanting to become pregnant, have eggs frozen, or donate eggs to take folic acid. Tablets of 0.8 mg folic acid per day are sufficient and should be taken from the start of treatment until 12 weeks into pregnancy. Starting up to three months before treatment may be beneficial. Folic acid is available from pharmacies without a prescription. Women on anticonvulsant medications need a higher dose of folic acid and should take advice from their doctor. A general multivitamin may be beneficial, but large doses of some vitamins, particularly Vitamin A, can lead to birth defects.

We recommend Elevit because it contains folic acid and iodine.

- **Antioxidants for men** There is increasing evidence that antioxidants may reduce sperm damage in some men. Antioxidants such as Vitamin C, Vitamin E and lycopene are present in many foods and in supplements.

We recommend Menevit. Menevit is available from pharmacies and from Fertility Associates' website and clinics.

- **Aspirin** There is considerable interest in whether low-dose aspirin may improve blood flow to the ovary and uterus and therefore improve the chance of pregnancy during IVF treatment. Overall the results don't show a benefit, but it may be useful in some people.
- **Heparin** Our doctors may prescribe low-dose heparin because of clotting abnormalities.
- **Alternative therapies** Many people wanting to become pregnant try alternative therapies such as Chinese herbs; aromatherapy; naturopathy; reflexology and acupuncture.

Please tell us of any alternative therapies you are using so we can check for any potential interaction with fertility treatment. We strongly recommend not using herbs while on fertility treatment because most ingredients have not been tested for their effect on sperm, eggs or embryos. There is conflicting evidence whether acupuncture before embryo transfer may increase the chance of pregnancy, but this is debated.

- **Sexual activity** There is no evidence that having sex after embryo transfer in IVF interferes with the embryos that have been transferred. Strange as it may seem, there is a small chance you may conceive naturally even in an IVF or thawed embryo cycle – we have seen a few cases of non-identical twins when only one embryo was transferred.
- **Exercise** Moderate exercise is considered beneficial for fertility as well as your general health, especially for women who have Polycystic Ovarian Syndrome (PCOS). However, very vigorous exercise may sometimes have an adverse effect on fertility – please tell your doctor what type of exercise you do.

De-stressing, not distressing!

Infertility hurts, the pain of infertility goes deep and the grief can feel overwhelming at times. On top of that, the medications used to stimulate the ovaries usually lead to bigger changes in your hormone levels than you are used to – you can easily feel more fragile and more easily stressed than normal. And if that is not enough, your hopes and expectations will be running high, but things may not go as expected. You may not

Things that really help

- Talk to our counsellors and nurses for information and support – tell them how you are feeling, don't bottle it up.
- Find a few friends or family members with whom you can really share your feelings and experiences. And men, you are not exempt.
- Make life as easy as possible – postpone or cancel stuff that is not essential right now.
- Give yourself some treats or pleasant activities to look forward to, so you can enjoy life outside treatment.
- Have plenty of rest because the high hormone levels from the medications can make you tired. Stress is also tiring.
- Make allowances for each other. Share feelings and anxieties with your partner or support person.
- Write it down – keep a calendar with blood test dates to help plan and manage your time, and the instructions from the clinic staff so you don't need to worry about remembering what was said.
- Be prepared to take some time off. Many women feel discomfort before and after IVF egg collection due to swelling of the ovaries. After embryo transfer some women feel the psychological need for a day or two off work.
- Waiting for the pregnancy test can be long and hard – every study shows this is the most stressful part of treatment. Plan some nice activities for this time.
- It can take some time to get your emotional balance back if you find you are not pregnant – go easy on yourself and remember our counsellors are here for you.
- Finding you are pregnant often brings a new set of anxieties – this is natural.

And for partners:

- Most of the treatment is going to centre on your partner – but don't hide your feelings or feel that you are redundant in the process of creating a child.
- Men often handle intense feelings, anxieties and crises differently to women – e.g. by playing sport or working harder. You need to let her know how you are feeling.
- Talk to someone other than your partner with whom you can be honest and receive real support.
- If you are feeling anxious, or become concerned about your partner, call us because looking after people's emotional well-being is an important part of treatment.

Write down instructions from the clinic staff so you don't have to worry about remembering what was said.

respond well to the medications; you may get fewer eggs than you expect in IVF; the number of eggs that fertilise normally may be low. And then there is your sex life... or not!

On the previous page we've summarised things that really help.

• See our Fertility Facts on Male Fertility and Semen Tests. www.fertilityfacts.co.nz
• There is a lot of good information available – including FertilityNZ's information brochures. Visit their website: www.fertilitynz.org.nz

Although our doctors and nurses do understand how you are feeling and are here to support you, we also have fertility counsellors who are specifically trained to help you prepare for, and cope with, treatment and its outcomes. They are experts with lots of experience and wisdom.

Although at least one consultation with a counsellor is included in the cost of IUI, IVF and donor treatments, many people don't like the thought of seeing a counsellor – 'There is nothing wrong with me!' And while that's totally true, nearly everyone who has talked with a counsellor then says:'I wish I'd done that sooner'. You can arrange a counselling appointment through reception or your doctor's nurse.

Who pays?

You pay for doctor, nurse and counselling consultations, diagnostic tests, medications and treatment unless you have been referred for a publicly funded consultation, or enrolled for publicly funded treatment.

We will confirm the cost of a consultation at the time of making the appointment, and will give you written information about the cost of treatments.

We expect payment for consultations at the time of the appointment, and for treatment soon after starting each treatment cycle. There are several ways of paying for an IVF cycle. See our separate fees guide.

Public funding of fertility treatment is explained on page 122. Generally, donors do not pay for anything related to their donation – this is covered by the recipient. However, donors will be asked to contribute to the costs of donor-linking when they request information about or from a recipient.

What the law says

Fertility treatment in New Zealand is covered by the Human Assisted Reproductive Technology (HART) Act 2004 and its amendments. We will only cover general aspects here. The Act has a lot to say about sperm, egg, and embryo donation and surrogacy – that is covered later in the magazine in the section on donor treatments.

You need to know that:
• The HART Act applies to all treatments where sperm, eggs and embryos are used outside the body, or stored for treatment.
• Sperm, eggs, embryos, ovarian tissue and testicular tissue can be stored for a maximum of 10 years. If frozen sperm or eggs are used to create an embryo, the expiry is 10 years from the date the eggs or sperm were frozen. The clinic can help you apply to the ethics committee if you want to extend storage.
• Sperm can't be used after a man's death, or embryos after a man or woman's death, unless the person has made it clear in their consent form what they would want.

See our Fertility Facts on Extended\Storage, which will be updated as more information becomes available. www.fertilityfacts.co.nz

Consent

We need your written consent for any treatment which uses sperm, eggs or embryos outside the body or for storage, fertility medications that stimulate the ovary other than clomiphene or letrozole, and for any operative procedure such as surgical sperm retrieval.

Our counsellors are specifically trained to help you – they are experts with lots of experience and wisdom.

Medical consent is not just a piece of paper that you sign; it is the whole process of being well informed for which the piece of paper is a record. Your doctor, nurse, embryologist or counsellor will go over the consent with you. This is an ideal time to ask questions about treatment and the decisions you need to make.

We have tried to make consent easier by making most consent forms last 5 years, although you can choose a shorter period. All parties, such as the woman and her partner, need to sign the consent form in person, at the clinic, in the presence of a clinical staff member, before treatment begins. We can give you a copy of your signed consent form on request'

Once you have signed the main IVF consent form, called Part A, you don't need to come into the clinic to sign the consent forms associated with a specific IVF or thawed embryo cycle. You can complete the Part B at home, scan it, and send it back to us by email. You must sign a printed copy – we do not accept cut and pasted signatures.

Part B records the decisions you make for a particular IVF or thaw cycle, such as the number of embryos to transfer and what to do with non-viable eggs or embryos.

If your partner can't be present during treatment, such as during egg collection or embryo transfer, we may contact him or her to confirm consent.

You can withdraw consent at any time, or change your mind about a decision you have recorded on a consent form as long as it relates to something that hasn't happened yet. If you do this, you will need to change the original consent or fill out a new form.

We can't start treatment until you have signed your consent form.

Keep in touch!

You must tell us of any change in address while you have any frozen sperm, eggs or embryos stored with us. Otherwise we may not be able to continue their storage.

Here you will find stories our patients have chosen to share with you about their experiences with fertility treatment, the impact on their lives and the different ways they coped with treatment. These stories are written by them and are unedited – they are in their own words...

IN MY OWN WORDS

Staying strong

Staying positive through the difficult times is important

HERE IS our story: It was extremely hard to get here, we didn't want to believe we had a problem. Sitting in the waiting room was scary till we realised everyone was here for some reason.

Seeing the doctor was overwhelming because we found out the process we would have to go through because, yes, there was something wrong and we needed help. At the beginning there was too much in our heads but as we read the info more, it made sense to us. Dr VP was really very good with us and helpful. Our counsellor Sue was amazing, very supportive, and made us feel so comfortable and at ease when we needed someone to listen. It felt like we had known her for a very long time.

It was pretty surreal and so unfair that other people could easily have children and we can't. Once we got over that we could move forward and focus on what we needed to do, it's still pretty hard but we think about the baby we want to have. Some things have been really hard – all the waiting seemed long, and then when our first cycle failed that made it really hard, but as a couple we worked together, both had a lot of tears but we needed to pick ourselves up and get over it so we could move forward. We decided to have another project that we could achieve to take the focus off IVF and doing something else together that worked. Right at this moment we have grown so much stronger. We prepared for this cycle by losing weight, getting fit, eating healthy and we know this has helped.

We are very excited about the next cycle we are doing at the moment. But unfortunately it was not a good outcome for us again. So back to the drawing board, as the saying goes, never give up without a fight... fingers crossed, next time will be our time!!

Keep positive and never give up hope.

"Some things have been really hard – but as a couple we worked together, both had a lot of tears but we picked ourselves up and got over it so we could move forward."

Our Pathway...

Counselling

When you would like to contact a counsellor or make an appointment to see one, please telephone Fertility Associates reception on 0800 10 28 28. A counselling consultation is provided free of charge with every IVF cycle so please make use of this important service.

NON-IVF TREATMENT

- Clomiphene
- IUI
- OI with FSH

Clomiphene Citrate (CC) and Letrozole treatment

Clomiphene was the original 'fertility pill' and is still widely used for women who don't have regular menstrual cycles, and for women with a shorter duration of unexplained infertility. Letrozole is a new alternative to Clomiphene.

How clomiphene and letrozole work

As we've mentioned earlier in the section called 'Hormones and medications' page 16, the pituitary gland at the base of the brain produces a hormone called FSH which makes follicles grow in the ovary, and the follicles make a hormone called estradiol. When the pituitary gland senses increasing levels of estradiol, it reduces the amount of FSH it releases.

Clomiphene blocks the action of estradiol on the pituitary gland, so the pituitary gland pumps out more FSH than usual. Letrozole has a similar effect on FSH by reducing the amount of estradiol made in the ovary. It is the extra FSH that restores the menstrual cycle in women who aren't ovulating or who have irregular cycles, and which can be beneficial for those with unexplained infertility. Producing one follicle is the aim for women having clomiphene or letrozole to restore a regular cycle, while 2-3 follicles is the aim when using clomiphene treatment for unexplained infertility. However, pregnancy rates with clomiphene and letrozole are still good even with only one follicle in women with unexplained infertility. This is probably due to these medications orchestrating good control follicle growth.

Problems and solutions

There aren't any tests to predict the right dose of clomiphene or letrozole for a particular woman, so common problems are:

- The initial dose isn't high enough to be effective. This can be picked up by blood tests or an ultrasound scan. The solution is to increase the dose the next month.
- The initial dose causes too many follicles to grow, increasing the risk of multiple pregnancy such as twins or triplets. This can be picked up by blood tests or an ultrasound scan. The solution is to reduce the dose the next month.

Clomiphene partially blocks the action of estradiol in all types of tissue, including the cervix. This means it may reduce the quality of cervical mucus around the time of ovulation which may make it harder for sperm to swim through the mucus on their way to the egg. It is hard to measure this, although some women are good at detecting their mucus around ovulation. Letrozole does not affect cervical mucus.

Risks and side effects

- **Multiple pregnancy** Blood tests and ultrasound scans give a good idea about how many follicles are growing in the ovary in a particular month of treatment but they are not perfect. In addition, for many women the aim is to grow 2-3 follicles. As a consequence, about 10% of pregnancies from clomiphene treatment are twins, and about 1% are triplets. Quadruplets or more are possible but very rare. The chance of twins is lower with letrozole – below 5%.

Twins are associated with 2-3 times more risk for both the mother and children for a wide range of adverse outcomes, from maternal death to cerebral palsy. See our Fertility Facts on the risk of twins. www.fertilityfacts.co.nz

- **Ectopic pregnancy** When an embryo implants in the Fallopian tube, the cervix or the abdomen it is called an ectopic pregnancy. Ectopic pregnancies can be dangerous because the placenta can burrow into a blood vessel and cause major internal bleeding. Clomiphene or letrozole don't increase the risk of ectopic pregnancy, but all women having fertility treatment need to be aware of the possibility of ectopic pregnancy. We can usually detect an ectopic pregnancy by the level of hCG in the pregnancy test and an early ultrasound scan, but not always. Symptoms include severe, localised abdominal pain.

Other side effects

About 10% of women using clomiphene experience hot flushes because of the way clomiphene blocks the action of estradiol. Other side effects can include nausea and breast tenderness. Mood swings are common but seldom severe; but if so please talk to us. Headaches and blurred vision are rare side effects. Tell us if you experience any of these while on treatment. These side effects occur less often with letrozole.

Pain is your body's way of saying that something may be wrong. We need to know about any symptoms that might be concerning you.

Clomiphene has been used for over 40 years without any evidence of an increased risk of birth defects. It is unclear whether clomiphene could increase the risk of ovarian cancer or breast cancer – as a precaution most experts recommend that clomiphene should not be used for more than twelve months. Letrozole was originally designed to help treat breast cancer and it is not yet registered to treat infertility in New Zealand. Because of this, we ask you read our information sheet about Letrozole and to do a home pregnancy test to check that you are not pregnant at the beginning of each cycle in which you will take Letrozole. While having a period nearly always means that you are not pregnant, it is possible to be pregnant and still have a period-like bleed. A pregnancy test or measuring other hormones can often clarify what is happening, but not always. Taking clomiphene or letrozole at this early stage of a pregnancy doesn't have any untoward effects on the fetus.

Clomiphene and Letrozole options

There are two approaches to clomiphene or letrozole treatment.

- **Monitored cycles** where follicle growth is monitored by ultrasound scans and often blood tests around the middle of your cycle. Your nurse will give you the results and advice about what to do next each day you have a test.
- **Reviewed cycles** where the doctor gives you a prescription and a form for blood tests, usually for days 12 and 21 of your cycle. The results of these tests are not used to monitor your cycle at the time, but they help your doctor plan the next cycle if you don't become pregnant.

Reviewed cycles are simpler and cheaper but they provide less protection against multiple pregnancy. Many doctors prefer to start with a monitored cycle even if the overall choice is to have reviewed cycles.

With both options, your doctor will review your results before you start your next cycle. You will usually have a followup appointment with your doctor every 3-4 cycles if you do not become pregnant.

Success with clomiphene and letrozole

Over 80% of women who otherwise have irregular cycles will ovulate using clomiphene or letrozole.

Step by step through clomiphene or letrozole

The 'day 1' call

Your day 1 call to the clinic is how you start your clomiphene or letrozole cycle. Day 1 is the first day of your cycle that you wake up with your period. If your period starts in the afternoon then the next day is day 1. If you do not have periods, your doctor will arrange for you to take Provera or Norethisterone tablets to induce a period.

Please call the clinic before 10:30 am on your day 1 – if the person is busy please leave a voice message. We will act on your message on Monday if you call our Dunedin clinic on the weekend, or if you call our Christchurch clinic on Sunday, otherwise we will act the same day. This also applies to public holidays except Christmas and New Year.

The person who takes your call will give you instructions on when to start clomiphene or letrozole, and when your first blood test and scan will be if you are having a monitored cycle. If you haven't already got a prescription for clomiphene or letrozole, she will arrange that too.

Paying for private treatment

The clinic will tell you the cost of treatment before you start. We will invoice you for each cycle soon after your day 1 call. Feel free to call our accounts staff if you have any questions.

Blood tests and scans

There are a variety of places you can have blood tests taken – they include most cities and several places in the larger cities such as Auckland and Wellington. The blood tests for monitored clomiphene differ from other blood tests you may have had because we have special arrangements to ensure we get the results in time for making decisions each day.

You will need to have these blood tests done by 9 am while on treatment.

Ultrasound scans are usually done between 8am and 9am but times later in the morning can sometimes be arranged. Each clinic has its own way of recording when you arrive so that the doctor doing the scanning knows who is waiting – the nursing or reception staff will let you know how it works.

Ultrasound scanning uses an ultrasound probe placed in the vagina. You should have an empty bladder to allow the doctor to get the best possible view of your ovaries and the follicles growing in them.

Decisions

Every day you that have a blood test or scan in a monitored cycle we will get back to you with an instruction about what to do next. Our doctors, nurses and embryologists look at the results around lunchtime to make a decision. We usually send instructions by Salve, or call you when there is something more significant. Expect a Salve message or call by 4pm unless we or you have arranged something different. The nurses do not go home until they have checked that Salve messages have been sent or calls made. Please check weekend times with your nurse.

- The Salve app is a great way to remember the instructions and information we send.
- There are some blank pages at the back of this magazine that can be used as a treatment diary.
- We have found that when people call the clinic instead of us calling them, many calls get diverted to voice mail because staff are already speaking to other patients. We then need to listen to voice messages instead of answering new calls.
- Please phone the clinic if you have not heard from us by 4:30pm.

No response to clomiphene or letrozole

A relatively low dose is usually chosen in the first cycle of treatment to reduce the chance of too many follicles maturing. For some women this dose will be too low to stimulate any follicles to develop, and they will need to use a higher dose in the next cycle of treatment. Occasionally it may take two or even three cycles to decide on the right dose for an individual woman.

There will also be women who do not respond to clomiphene or letrozole at all and who will need other types of hormone treatment to induce ovulation.

Stopping treatment because there are too many follicles

Although the dose of clomiphene or letrozole is designed to stimulate only 1–3 follicles to mature, sometimes more develop. A particular woman can also respond differently to the same dose in different treatment cycles.

If you develop too many follicles the chance of triplets or quadruplets may be too high, so we will advise you to use a condom as barrier contraception, or not to have sex. A lower dose will be tried in the next treatment cycle.

Having sex

It is important to have intercourse close to ovulation. If you are having monitored clomiphene or letrozole, the blood tests and scans will give us some idea about when you will ovulate, but this is not exact. The size of the follicle at ovulation can differ between women, and between different cycles in the same woman. We recommend you have sex once your largest follicle is expected to be 18 mm in diameter, and then every day or couple of days for the next 3 to 4 days. Having regular sex over the days when ovulation may occur is more important than trying to predict the actual day of ovulation. There is no advantage to 'saving up' – sperm quality can fall with increasing duration of abstinence.

If you are using the reviewed cycle option, then you should have sex every couple of days from about day 11 of the cycle onwards.

The quality of cervical mucus is greatest on the day before, or the few days before, ovulation, and then falls once the LH surge starts. The sperm of most men can survive for two or more days in good quality cervical mucus, so it is important to have sex leading up to ovulation rather than afterwards.

We discourage the use of LH urine tests to try to detect ovulation. Clomiphene and letrozole raise the level of LH as well as FSH and may cause the urine test to show a 'false-positive' result. Also, the quality of the cervical mucus may have decreased by the time the LH level is high enough to give a positive result in the test.

Triggering ovulation

Women having clomiphene or letrozole usually have a natural surge of the hormone LH that triggers ovulation. In some women this does not happen reliably. Ovulation can be triggered with an injection of hormone hCG. We will tell you whether you need an hCG trigger, and how and when to give it.

Waiting for the pregnancy test

Most people say that waiting to see whether you are pregnant is the most stressful part of treatment. Please feel free to make an appointment to speak with a counsellor if you would like some extra support during this time.

Did you know

Contrary to popular belief, the timing of sex doesn't have any impact on the chance of conceiving a boy or a girl.

Intra Uterine Insemination (IUI) treatment

IUI is a relatively simple treatment used in cases where there is deficient cervical mucus, mild male-factor infertility, mild endometriosis or unexplained infertility.

IN NATURE probably only one in a million sperm from the ejaculate reaches the vicinity of the egg in the Fallopian tube. IUI gives sperm a head start by placing several million sperm directly into the uterus. IUI is often combined with a medication like clomiphene to increase the number of eggs ovulated from one to 2–3.

IUI options

• **Simple IUI** refers to IUI in a natural menstrual cycle without the use of any medications. This approach helps sperm transport through by-passing the woman's cervical mucus or when men cannot ejaculate normally, for instance after surgery to the prostate or bladder. It is often a good option when sperm has been frozen, such as before cancer treatment or vasectomy.

In simple IUI, daily blood tests or urinary LH tests are started a few days before ovulation is predicted. These tests measure the level of the hormone called LH. LH starts to rise about 36 hours before ovulation – this is often called the 'LH surge'. Clinic staff use the change in LH levels to decide the best time for insemination.

Simple IUI is usually the first option for women using Donor Sperm.

• **Stimulated IUI** (sometimes written IUIS) combines IUI with a low dose of medications to try to increase the number of eggs from one to 2–3. Stimulated IUI can improve the chance of pregnancy for couples who have unexplained infertility, for couples when the man has moderately lower sperm concentrations or moderate reduction in the number of moving sperm, and for couples when the woman has mild or moderate endometriosis.

There are various ways to try to increase the number of eggs that mature in a treatment cycle. The simplest is by taking the pill clomiphene citrate or letrozole for 5 days, usually starting on the third day of the cycle.

Whatever the approach in stimulated IUI, we monitor the growth of follicles in the ovary by blood tests that measure the amount of estradiol the follicles are producing and by ultrasound scans that measure the number and size of the follicles.

As for simple IUI, we measure LH daily to time insemination.

Ovulation can be triggered by a single injection of the medication hCG before LH starts to rise. A trigger injection can improve the timing of insemination and it will give you an extra day's forewarning of when insemination will occur. An hCG injection is sometimes given after LH starts to rise to support the biological effect of LH – in this situation insemination is timed by the LH rise rather than when hCG is given.

Problems and solutions

There aren't any tests to predict the right dose of clomiphene for a particular woman having IUIS, so common problems are:

• The initial dose of clomiphene isn't high enough to produce more than one follicle. If this happens, we will give you the choice of continuing treatment or stopping and trying again at a higher dose of medications.

• The initial dose of medications causes too many follicles to grow, increasing the risk of multiple pregnancy such as twins or triplets. If this happens we will stop treatment and ask you not to have sex or to use barrier contraception such as a condom or diaphragm. A lower dose of medications will be used in the next cycle. Although we can count the number of sperm we place in the uterus, we can't be sure they actually reach the egg(s) and lead to fertilisation. Because of this, we recommend that you move to IVF after three or four cycles of IUI whether using partner sperm or donor sperm.

Risks and side effects

• **Multiple pregnancy** Blood tests and ultrasound scans give a good idea about how many follicles are growing in the ovary in a particular month of treatment but they are not perfect. About, 10% of pregnancies from IUI treatments using Clomiphene are twins and about 1% are triplets. Quadruplets or more are possible but very rare. The chance of twins is lower using Letrazole.

Twins are associated with 2-3 times more risk for both the mother and children for a wide range of adverse outcomes, from maternal death to cerebral palsy. See our Fertility Facts on the risk of twins. www.fertilityfacts.co.nz

• **Ectopic pregnancy** When an embryo implants in the fallopian tube, the cervix or the abdomen, it is called an ectopic pregnancy. Ectopic pregnancies can be dangerous because the placenta can burrow into a blood vessel and cause major internal bleeding. IUI probably doesn't increase the

risk of ectopic pregnancy, but all women having fertility treatment need to be aware of the possibility of ectopic pregnancy. We can usually detect an ectopic pregnancy by the level of hCG in the pregnancy test and an early ultrasound scan, but not always. Symptoms include severe, localised abdominal pain.

• **Ovarian Hyper-Stimulation Syndrome** (OHSS) The low dose of medications used means that OHSS is very rare in IUI. The IVF section covers OHSS in detail.

• **Vaso-vagal reaction** There is a small chance of a vaso-vagal reaction at the time of insemination when the catheter is placed in the uterus. The vaso-vagal reaction is a reflex that causes the heart to slow, blood pressure to drop, and fainting. If this happens the insemination would be stopped and done at a later time.

• **Infection after insemination** Infection can occur when bacteria that are present in the vagina are transferred into the uterus during the insemination procedure. It probably happens in about 0.3% of cycles. Infection nearly always settles with antibiotics, but there have been rare cases of damage to the uterus or Fallopian tubes. Call the clinic if you feel sore, feverish or unwell within a few days of insemination.

• **Bleeding after insemination** Occasionally there is a little bleeding from the cervix the day of insemination or the day after. It is unlikely to affect the chance of pregnancy.

Pain is your body's way of saying that something may be wrong. We need to know about any symptoms that might be concerning you.
It is important to contact the clinic the same day if you have any of the following symptoms:

- Abdominal pain or discomfort;
- Abdominal bloating or swelling;
- Nausea or vomiting;
- Decreased urine output;
- Shortness of breath or difficulty breathing;
- Severe headache;
- Pain, bleeding or cramping after the insemination.

The medications used in IUI have been used over 40 years without any evidence of an increased risk of birth defects. Long-term follow up studies have failed to show any association between fertility treatment and ovarian or breast cancer. Pregnancy provides some degree of protection against ovarian cancer.

• **Taking medication while pregnant**
While having a period nearly always means that you are not pregnant, it is possible to be pregnant and still have a period-like bleed. A pregnancy test or measuring other hormones can often clarify what is happening, but not always. Taking the IUI medications at this early stage of a pregnancy doesn't have any untoward effects on the fetus.

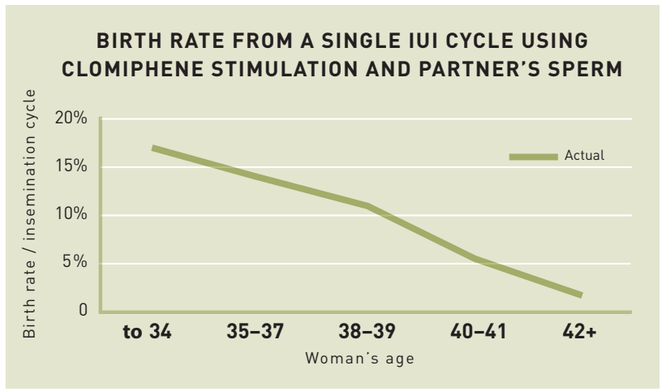


Figure 4.

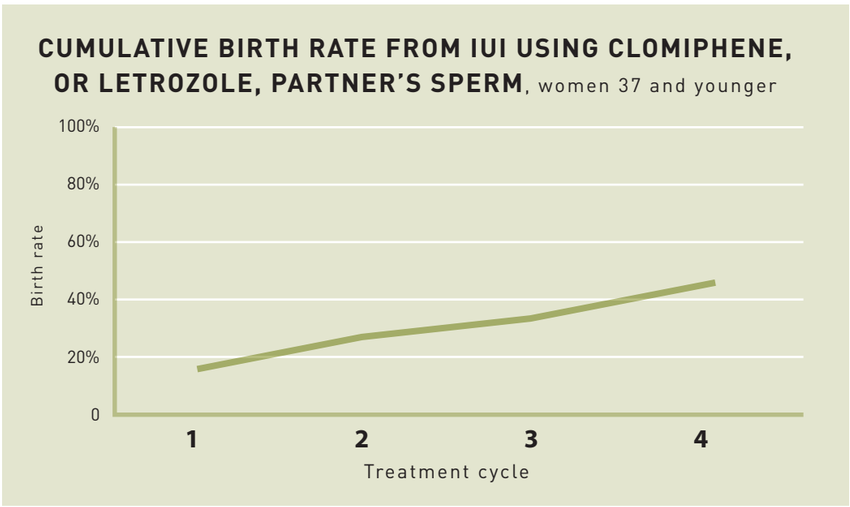


Figure 5.

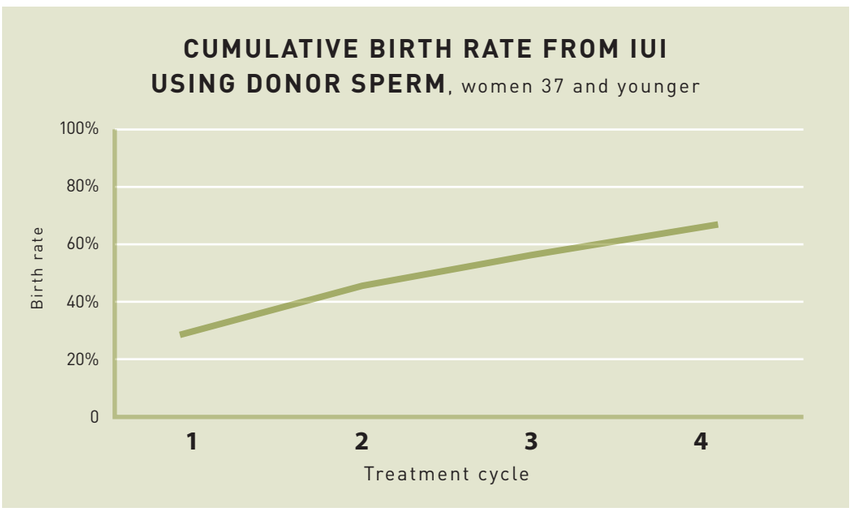


Figure 6.

Success with IUI

Figure 4 shows the chance of a birth from a single IUI cycle where the woman used donor sperm. The data includes all cycles at Fertility Associates clinics for the last 3 years with birth outcomes. It does not include the 10-15% of cycles stopped before insemination for a variety of reasons.

Figure 3 shows the birth rate from a single IUI cycle using partner's sperm and Clomiphene or Letrozole as a medication to increase the number of follicles. This figure is based on treatments in the last 10 years – we needed 10 years of data to accumulate 1000 cycles for analysis.

No one tries to become pregnant naturally and then gives up trying after 1 or 2 months →

Did you know

At the back of this magazine we have a section for you to keep a record of the instructions you have been given (called "Your treatment diary") and also a couple of extra pages for you to make notes on things you may find you want to keep all in one place during treatment.

if they don't succeed. The overall chance of becoming pregnant increases with the number of times you try – this is called the 'cumulative pregnancy rate'. Figures 5 and 6 shows cumulative pregnancy rates for IUI using partner's sperm and donor sperm. If you do not become pregnant after 4 cycles of IUI, our doctors advise moving to IVF. It can be useful to move to IVF earlier when a woman is 40 or older.

Step by step through IUI

The 'day 1' call

Your day 1 call to the clinic is how you start your IUI cycle. Day 1 is the first day of your cycle that you wake up with your period. If your period starts in the afternoon then the next day is day 1.

Please call the clinic before 10:30 am on your day 1 – if the person is busy please leave a voice message. We will act on your message on Monday if you call our Dunedin clinic on the weekend, or if you call our Christchurch clinic on Sunday, otherwise we will act the same day. This also applies to public holidays except Christmas and New Year.

The person who takes your call will give you instructions on when to start clomiphene or FSH if you are using these medications, and when your first blood test will be. If you haven't already got a prescription for clomiphene or letrozole, she will arrange that too.

You should have given written consent before starting treatment. We can't start treatment until we have completed your consent form.

Paying for private treatment

The clinic will tell you the cost of treatment before you start. We will invoice you for each IUI cycle soon after your day 1 call. You will need to pay for your IUI cycle by the time of insemination. Any medications, such as FSH or hCG, need to be paid for when you pick them up from the clinic.

There is more information on paying for tests and treatment in our separate fees guide. It also covers refunds if you need to stop treatment.

About fertility medications

If you are likely to need FSH or hCG injections, one of our nurses will go over self-injection or give you a refresher if you would like it.

Many of the medications we use have a limited shelf life once they reach room temperature – the nurses will tell you how to store each medication you use. You don't need to keep the medications cold while you take them home. Because the medications are expensive, we try to minimise the cost by only issuing what is needed until your next blood test or scan. However, it is possible that not all medications will be used and that sometimes you may need to discard medications.

We will give you a specific instruction sheet for each type of medication you will use.

The medication instruction booklets for both Gonal F and Puregon have a section at the back to record how much Gonal F or Puregon you have used and how much is left. We strongly recommend you use this.

- Unfortunately we are unable to credit unused medications at the end of treatment.
- We will give you containers to store any used needles and syringes. You can bring them back to the clinic for disposal at the time of insemination.

Blood tests and scans

There are a variety of places you can have blood tests taken – they include most cities and several places in the larger cities such as Auckland, Wellington and Christchurch. The blood tests for IUI differ from other blood tests you may have had because we have special arrangements to ensure we get the results in time for making decisions the same day.

You will need to have these blood tests done by 9am while on treatment

Ultrasound scans are usually done between 8am and 9am but times later in the morning can sometimes be arranged. Each clinic has its own way of recording when you arrive so that the doctor doing the scanning knows who is waiting – the nursing or reception staff will let you know how it works.

Ultrasound scanning uses an ultrasound probe placed in the vagina. You should have an empty bladder to allow the doctor to get the best possible view of your ovaries and the follicles growing in them.

Using urinary LH tests

Although we recommend using blood tests to measure LH, it is sometimes practical to use urine tests you can do at home, such as Clearplan. We have found that doing a urine test twice a day increases the reliability of detecting the LH rise to about 90%. Make sure to test your urine at the same time in the morning and evening each day.

When the line in the test window is darker than the line in the control window, ring the clinic and we will arrange a time for insemination. If the first positive test is in the evening, insemination is usually performed the next morning. If the first positive test is in the morning, the insemination may be performed the same afternoon or the next morning.

If you have any difficulties or uncertainties about using the urinary LH kit, or interpreting the colour, please call your nurse. The urinary kit instruction sheet can also be very helpful. In some cycles there is no colour change or only a weak change. If this happens in more than one cycle, we would probably recommend using blood tests for future cycles.

Every day that you have a blood test or scan, we will get back to you with an instruction about what to do next. Our doctors, nurses and embryologists look at the results around lunchtime to make a decision.

We will have nearly always made a decision on the next step of your treatment by 2pm on the day of your blood test or scan. You can expect a message or call with your next set of instructions between 2pm and 4pm on weekdays.

We usually send instructions by Salve, or call you when there is something more significant. During weekdays, expect a Salve message or call by 4pm. The nurses do not go home until they have checked that Salve messages have been sent or calls made. Check weekend hours & times with your nurse.

The Salve app is a great way to remember the instructions and information we send, and will remind you of medications, blood tests and scans.

- We have found that when people call the clinic instead of us calling them, many calls get diverted to voice mail because staff are already speaking to other patients. We then need to listen to voice messages instead of answering new calls.
- Please phone the clinic if you have not heard from us by 4:30pm.
- You must be able to be contacted by the clinic from the time you start ovarian stimulating medications such →

as Gonal F or Puregon until the day of insemination.
• If you are not available between 2pm and 4:30pm, we need to know where we can leave a confidential message for you.

If only one follicle develops when you are having IUI with stimulation, it may be better to stop and try again later using more medications. Occasionally treatment may be stopped for too great a response to the medications – about 3% of cycles are stopped for this reason.

If you develop too many follicles the chance of triplets or quadruplets may be too high, so we will advise you to use a condom as barrier contraception, or not to have sex. A lower dose of medications will be tried in the next treatment cycle.

We will always discuss options with you before any decision is made. Although it is very disappointing to have to stop treatment, you will benefit from what has been learned for future treatment.

Timing insemination

If the blood or urinary LH test indicates you are about to ovulate, IUI will be timed that afternoon or the next morning, depending on the pattern of LH, or the timing of the urinary tests. If ovulation has been triggered with hCG, insemination is timed 36-38 hours later.

The nurse you talk to will tell you when to deliver the semen sample and the time of insemination.

Sperm sample

We always use frozen donor sperm so you will have decided on your donor well before starting the IUI cycle. The embryologists will know what sperm to prepare. You can skip the rest of this section.

Sperm quality is best if the sample is collected within one hour of giving it to the embryology staff. You can produce the sample at home or you can provide it at the clinic – we have rooms for this in each clinic. Please tell us where you are going to be during the day in case we need to contact you about the quality of the sample.

We advise one to two days of sexual abstinence to optimize the number and quality of sperm. Periods of abstinence longer than this can be detrimental because of the accumulation of aged sperm.

We have a semen analysis instruction sheet with detailed information about providing a semen sample.

We discourage the use of lubricants because even small amounts can be relatively toxic to sperm. There is one lubricant that is relatively 'sperm-friendly', known as 'Pre-Seed'. Clinic staff can give you more information.

If you are concerned that you may be unable to produce a semen sample on the day, we may be able to freeze a back-up sample. This needs to be done well in advance so we can see how well the sperm survives freezing and thawing. There is a separate charge for sperm freezing unless it is done for medical reasons as part of publicly funded treatment. You will also need to complete a consent form for freezing and using the frozen sperm.

Sperm quality is best if the sample is collected within an hour of giving it to the embryology staff. You can produce the sample at home or you can provide it at the clinic.

Sperm preparation

The embryologists 'wash' the sperm free of the seminal fluid. The sperm are harvested in a small amount of culture medium and used for the insemination. Sperm washing takes one to one and a half hours. The culture medium contains a small amount of human serum albumin, a protein purified from blood that has been screened to Blood Bank standards. It also contains low levels of some antibiotics.

Insemination and afterwards

The insemination procedure involves placing the washed sperm directly into the uterus. The procedure itself is similar to a cervical smear – straightforward and painless. A nurse will insert a speculum into the vagina, pass a fine catheter into the uterine cavity and gently push the sperm solution into the uterus. After insemination, you can continue your normal activities, including sex. You are welcome to have someone present to support you at your insemination.

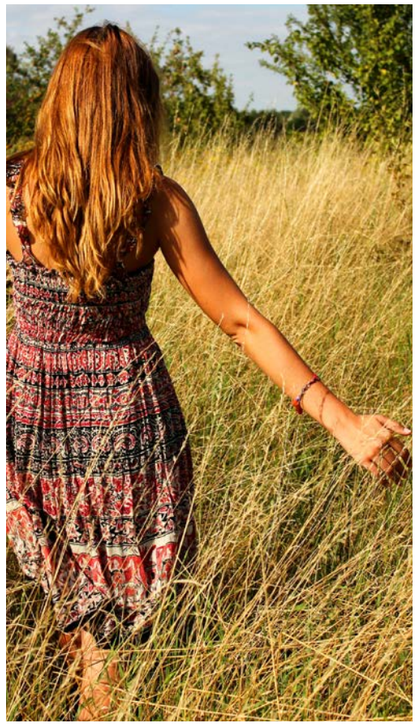
Hormone support

If you need extra progesterone to support the lining of the uterus, the nurse will explain how to use vaginal pessaries or gel over the following two weeks. The progesterone usually comes in the form of 'micronised' progesterone pessaries with the trade name 'Utrogestan'. 'Crinone' is an alternative form of progesterone that comes as a gel in a pre-filled applicator. All women will get a slight discharge when using Utrogestan or Crinone. Please tell us if irritation occurs.

Waiting for the pregnancy test

Most people say that waiting to see whether you are pregnant is the most stressful part of treatment. Please feel free to make an appointment to speak with a counsellor if you would like some extra support during this time.

Ovulation Induction (OI) with FSH



OI with FSH may be an option for women who don't ovulate, who don't respond to clomiphene, or who haven't become pregnant using clomiphene.

THE STEPS in OI with FSH treatment are mostly the same as the steps in Intrauterine Insemination (IUI) treatment. Instead of repeating the IUI section in this magazine with a few changes, please read the IUI section keeping in mind the differences listed below.

Differences from IUI with stimulation	
Medications	You are going to be using one of the FSH medications, such as Puregon, Gonal F, Bemfola or Menopur. This is taken as a daily injection in the same way as in IVF treatment. Sometimes your doctor will prescribe the contraceptive pill or Norethistrone to give you a period before you start the FSH medication. This is to shed any lining of the uterus that might have built up, and mimics a natural menstrual cycle.
Time on the FSH medication	The secret to successful OI with FSH treatment is getting the dose of the FSH medication right. The right dose can be hard to predict, and can vary from month to month in the same woman. The safe approach is to start with a lower dose, do a blood test 5-6 days later, and then increase the dose if necessary and to repeat the blood test in another 5-6 days. It is not unusual to be on the FSH medication for up to three or four weeks until a mature follicle develops.
Stopping a treatment cycle	Because getting the dose of FSH right can be tricky, the chance of having to stop a particular cycle is higher for OI with FSH than for other treatments. Sometimes a cycle is stopped because there is an inadequate response to the FSH medication, but more often it is stopped for over-response. Twins are more likely with OI with FSH than with other treatments, so usually a cycle is stopped if more than two follicles develop. If this happens, your doctor may discuss the option of converting to an IVF cycle. We would only do this if the number of follicles in your ovaries would give you a good chance of pregnancy with IVF.
Triggering ovulation	We nearly always trigger ovulation using an injection of hCG in OI with FSH treatment, although sometimes people have an LH surge before the trigger injection. An LH surge will be picked up by the blood tests.
Insemination	Your doctor will decide whether intercourse or IUI is best for you based on semen quality and other considerations. If you are using intercourse, then we will tell you the optimal times to have sex. It is usually 12-24 hours after the hCG trigger, or the day of and/or the day after the LH surge. If you are having IUI, we'll arrange a time to provide the semen sample and do the insemination, as described in the IUI section of the magazine.
Success with OI and FSH	The birth rates using OI with FSH are similar or a little bit higher than shown in our graphs for IUI. The chance of twins averages 15-20%. There is a chance of twins even when an ultrasound scan shows one main follicle, because sometimes a small follicle can also give rise to a mature egg.

Here you will find stories our patients have chosen to share with you about their experiences with fertility treatment, the impact on their lives and the different ways they coped with treatment. These stories are written by them and are unedited – they are in their own words...

Just one beautiful child

Learning to accept and be grateful for what life brings us is not always easy, and sometimes takes time...

BEFORE my husband and I married we discussed having a family and our expectations regarding how many children we would like. We settled on two. Just like that, like somehow we could order up two children with ease. Six months after we married and not yet pregnant, we consulted with a fertility specialist who delivered the diagnosis that, unbeknown to me, I had severe endometriosis. An operation, a round of IVF treatment and blessedly I was pregnant within three months of diagnosis with our first child, a lovely healthy son, Jack*. The plan was coming together nicely.

When Jack was two we felt ready to add to our family once more. Three rounds of IVF followed, each with less encouraging results and no baby. Finally our fertility specialist advised us that we had such a tiny chance of conceiving a baby with one of my eggs, it was time to consider egg donation or adoption in order to add to our family. There is a name for it: secondary infertility, and it's not that uncommon.

My husband and I gave our options due consideration and decided neither egg donation nor adoption were something we personally wished to pursue. We turned our attention back to our family and away from striving for the much-wanted second child.

My husband came to terms with it reasonably quickly and I envied him for that. Thankfully I didn't resent him, instead looked to him for guidance on how to come to terms with our situation. He had a satisfying job to go to each day. For me, as a full time mum, it was hard. A lot of our friends, neighbours, acquaintances – everyone it seemed – were having their second or third children. Double buggies and people movers, anything that signified a family of more than one child, seemed to taunt me.

I started looking for other only children in a bid to somehow validate our situation. I'd see them with their parents, breathe a sign of relief, only to see another child appear from out of view and complete the picture. I enjoy reading house and garden magazines and I would pore over the pages willing at least one of the families featured enjoying their lovely home to have just one child – if they could be magazine perfect with one child then so might we.

I envied people, not only with more than one child but those who could have additional children but chose to have just one. I found myself explaining to complete strangers in the playground why Jack was an only child, like it was somehow socially unacceptable to have just the one.

All the while genuinely well-meaning people were trotting out what they believed were comforting words – certainly truthful – but not especially comforting. "You'll be able to travel" (yes, and airlines and hotels still welcome you

→

* Not his real name. First published in Parents Inc – www.parentsinc.org.nz

with two children); "You'll be able to take one of Jack's friends on holiday with you" (sure, this is definitely a great practical solution but not in the least bit reassuring when you're coming to terms with not being able to share your lives with a second child); and "You are just so lucky you have Jack" (very, very true, but why should we graciously accept only being able to have one child simply because I suffer from a disease?). A couple of friends said something that has always stayed with me: "That's awful. You're great parents. You deserve to have another child". Validation can be so comforting.

Other people's pity felt like the enemy. I did not want a single person to pity us. Sympathise with us but please, please do not pity us. Trying to think how lucky we were, with couples at the fertility clinic still childless, didn't help one bit. How can reassuring yourself on the back of someone else's misfortune ever be a good thing? It seems mean to me. Our friends were great, never tiptoeing around the subject of their growing families, happily sharing their family expansion news with us when they were pregnant. This was so important to us. I won't say it wasn't hard and I usually had a day or two of mixed feelings; happy for them, and sad for us, but that soon passed. We have so enjoyed the arrival of each and every one of these children. I thank all our wonderful friends and family for entrusting us with the care of their precious children. This certainly has gone some considerable way to filling the gap.

When Jack was four, we made a couple of decisions that have come to really enrich our lives as a family. The first was to buy a beach house. The house brings a new dimension to our family life and gives us somewhere the three of us can come together and really connect. It is also a great place to gather with friends and family. Jack loves our weekends and holidays there, sharing our retreat with his buddies.

The second was getting a pet. I did some research and just before Jack turned five, we brought home the most charming little Burmese kitten, who Jack promptly named Toby. Toby

"Other people's pity felt like the enemy. I did not want a single person to pity us. Sympathise with us but please, please do not pity us."

also went just a little way towards filling the gap. He is loving and playful and brings an empty house alive. Jack calls him his fur brother and I jokingly call him my second born.

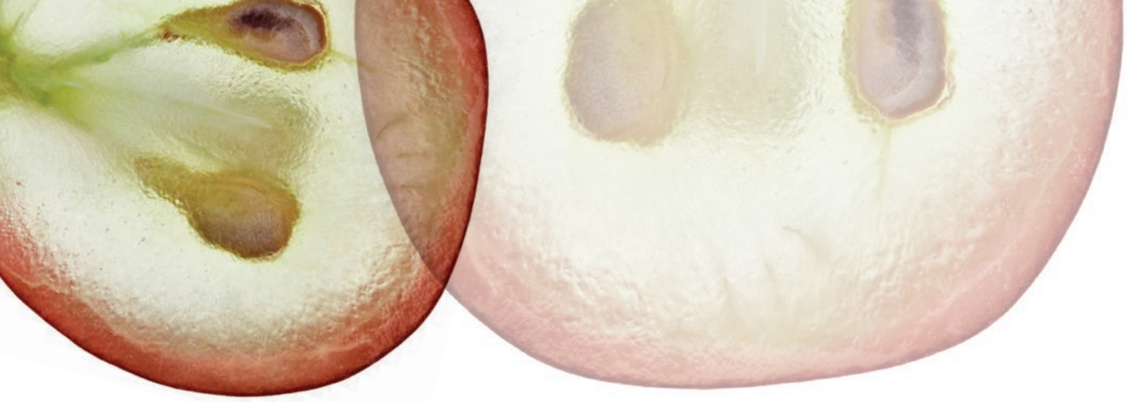
Naturally Jack has asked why he doesn't have siblings like his friends and we have always been honest and up front with him about my disease, his conception and my inability to grow another baby in my tummy. Thankfully he is very accepting, only occasionally raising the subject and he is easily reassured.

I believe there are benefits in having siblings and not having siblings and they possibly come out about even. A friend and mum of an only child once told me you are under no obligation to provide your child with a sibling but you are obliged to provide them with a social network. That we have done, and done well, I believe.

Jack started school this year. We made the conscious decision to send him to our local school. We wanted him to strongly identify with his own community. He is loving it and we are loving it too. We really enjoy our sociable walks to and from school and the ease of neighbourhood play dates.

I'm not conscious of the day, week or even month the shift occurred but it did. The gap in our family, that existed in my head and heart for about three years, has closed up or been filled. I'm not sure which. I am a Mum and can enjoy all that comes with the ups and downs of motherhood just the same as any Mum. I am at peace with the blessing of just one beautiful child and am free now to truly appreciate our great marriage, our awesome kid and our family unit which happens to be just perfect, for us.

Our Pathway...



IVF basics

What happens in IVF?

An IVF treatment cycle can be divided into five steps:

1. Ovarian stimulation, which uses medications to increase the number of eggs available.

2. Egg collection

3. Embryology, which covers preparing the eggs for fertilisation, adding sperm to the eggs to create embryos; care of the embryos in the laboratory, and freezing any suitable spare embryos.

4. Embryo transfer of an embryo into the uterus.

5. Luteal phase, which covers preparing and maintaining the uterus to allow an embryo to implant and give rise to pregnancy.

We have talked about hormones and medications earlier in this magazine, and how medications that mimic the body's own hormones are used to stimulate the ovaries to mature several eggs, instead of just one egg as in a normal menstrual cycle.

While more eggs are good in theory, there is a practical limit. Having more than 10-15 eggs can increase the chance of a serious complication called Ovarian Hyper-Stimulation Syndrome (OHSS) – more on that later in this section. Your doctor will individualise your IVF cycle by choosing an ovarian stimulation method and initial dose of FSH tailored for you based on Fertility Associates' experience in over 50,000 IVF cycles. This decision takes into account your age, your levels of AMH and FSH hormones, your BMI, whether you have polycystic ovarian syndrome (PCOS) or endometriosis, and of course what happened in any previous IVF cycles.

Having more than one embryo to use gives a further change of pregnancy – about 75% of patients had at least two embryos available for use.

Ovarian stimulation is monitored by blood tests and ultrasound scans. Once the follicles have grown to the right size, a trigger injection of the hormone hCG causes the follicles and their eggs to undergo the final step in maturation. Egg collection is scheduled 36 hours after the trigger injection, just before ovulation would otherwise occur.

Egg collection is done with the help of an ultrasound to 'see' the follicles in the ovaries. A needle fits along the side of the vaginal ultrasound probe. The ovaries are usually only 2-5cm from the top of the vagina, so they are easily reached with the tip of the needle. The doctor places the needle into each follicle and the fluid – hopefully with the egg – is gently aspirated into a test-tube. The test tube is passed to the embryologist to look for the egg under a microscope.

There are two ways of adding sperm to eggs. In conventional IVF, about 100,000 sperm are added to each egg. If there are few sperm or sperm quality is compromised, then a single sperm is injected into each egg in a technique known as ICSI.

Eighteen hours after adding sperm to the eggs, an embryologist checks for signs of fertilisation. The fertilised eggs, now called embryos, are culture undisturbed until day 5 unless embryo transfer is planned earlier for day 3. Good quality embryos that are not transferred are frozen on day 5, 6 or 7 depending on their development.

Most ovarian stimulation methods need extra progesterone supplied as vaginal pessaries to help prepare the uterus and to maintain the right environment for pregnancy to occur. This is called luteal support.

If you want to go into the details, we suggest you visit www.fertilityfacts.co.nz and read our Fertility Facts sheets on:

- Ovarian Stimulation – which explains how each ovarian stimulation method works and the amount of variation in egg number that typically occurs between one IVF cycle and the next;
- Sperm Microinjection (ICSI);
- Freezing Embryos.

The IVF numbers game

The following numbers illustrate the attrition that typically occurs in an IVF cycle:

Average number of follicles seen in the ovaries	15
Average number of eggs collected	12
Average number of mature eggs	10
Average number of mature eggs that fertilise normally	8
Average number of high quality embryo(s)	4

IVF options

- **Surgical Sperm Retrieval** Even when sperm are absent from the semen, they can sometimes be obtained from a fine needle biopsy of the testis. We have a Fertility Fact sheet on Sperm Microinjection (ICSI) and Surgical Sperm Retrieval (SSR)
- **Time Lapse Morphometry Imaging (TiMI)** In TiMI embryos are photographed every 10 minutes in a special incubator to allow better embryo selection. There is more information on TiMI at the end of this section.
- **Pre-implantation Genetic Testing for Aneuploidy (PGT-A)** PGT-A checks whether embryos have the wrong number of chromosomes, which is the leading cause of embryos not giving rise to a pregnancy. There is more information on PGT-A at the end of this section and on page 88.

A week-by-week approximate guide to the most common IVF cycles

This is just an average picture. You will get your own personalised management plan* at the start of each IVF cycle. Ovarian Stimulation is the first step in your IVF cycle. Below are the most common cycles of treatment.

The time course of IVF falls into two main parts, as represented in the diagram on the opposite page.

- **FSH stimulation** This is similar in almost all IVF protocols. FSH injections make the follicles grow and keep them growing in preparation for egg collection. This is known as the 'follicular phase' of the cycle.
The contraceptive pill, an estrogen medication (such as Progynova), or a gonadotrophin releasing hormone medication (such as Zoladex) can be given before the follicular phase to prevent follicles starting to grow too soon. The pill can also be used to adjust the date for starting FSH injections.
- **Embryology** After egg collection, the focus moves to the laboratory. Sperm are added to the eggs and the embryos are cultured in an incubator. If it is safe and appropriate to do so, one embryo is transferred to the uterus. Other good quality embryos are frozen for future use.

After egg collection, you start using progesterone pessaries to support the lining of the uterus. This is known as the 'luteal phase' of the cycle.

Problems and solutions

IVF treatment is a complex medical and scientific procedure so it is not surprising that unexpected things can sometimes happen even with the best knowledge in the world and lots of experience. If things do not go as well as expected, we will always discuss the options with you before any decision is made.

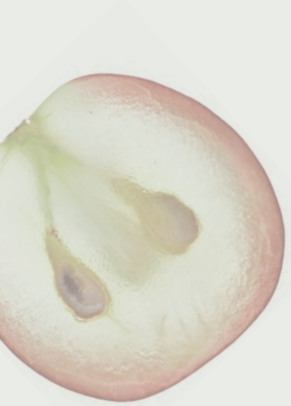
- **Slow down regulation** Sometimes down-regulation takes longer than expected – usually this just means delaying the start of the FSH injections by another 4-7 days. If a cyst develops it can usually be resolved by giving an injection of hCG. An alternative is to stop the cycle and to start again in 1-2 months time.
- **Stopping treatment for under-stimulation** If fewer follicles develop than expected the best option may be to stop treatment and start again using more medications. This happens in about 10% of cycles. If you have a low response during a publicly funded cycle, we will make the decision on whether or not to stop and whether you can be offered another publicly funded cycle.
- **Over-stimulation** Having too many follicles increases the risk of Ovarian Hyper-stimulation Syndrome (OHSS). The solution depends on the degree of risk. It ranges from stopping the cycle to freezing all the embryos to prevent pregnancy since pregnancy increases the risk of OHSS.
- **Ovulation before egg collection** This occurs in about in about 1 in 200 cycles.
- **Inaccessible ovary** Occasionally, one of the ovaries is difficult to reach with the egg collection needle so the eggs cannot be retrieved from this ovary.
- **No or low fertilisation** Unexpected low or no fertilisation can arise because of a sperm factor, an egg factor, or can just be unexplained.
It seldom recurs and the pregnancy rate in subsequent ICSI cycles is normal.
- **Infection of culture dishes** Very occasionally culture media may become contaminated with bacteria from the semen or from the vagina during egg collection which may lead to the embryos dying. There are various strategies to minimise the risk in subsequent cycles.
- **Delayed or abnormal embryo development**
Almost everyone has at least some embryos that stop developing normally by the time of embryo transfer. Occasionally all embryos stop developing so that there are no embryos to transfer or freeze. When this happens it can be very difficult to advise what to do next – for some people the problem will recur in another cycle, while for others it is a 'one-off' phenomenon that probably arose by chance.
- **Embryo lost at transfer** Occasionally it is difficult to pass the embryo transfer catheter through the cervix – the doctor will remove the catheter before trying again. In some cases, the embryo is lost during this process – presumably because of mucus entering the tip of the catheter. This happens in fewer than 1 in 1000 transfers.
- **Taking medication while pregnant**
While having a period nearly always means that you are not pregnant, it is possible to be pregnant and still have a period-like bleed. A pregnancy test or measuring other hormones can often clarify what is happening, but not always. Taking the IVF medications at this early stage of a pregnancy doesn't have any untoward effects on the fetus.

Risks and side effects

IVF treatment is a medical and surgical procedure which carries its share of side effects and risks. Side effects are common events that seldom pose a threat to health or life although they may be unpleasant and painful. Risks are uncommon events that can potentially have serious and permanent consequences.

Common side effects

• Mild post-menopausal-like symptoms, such as hot flushes, headaches, sore breasts, tiredness and occasionally nausea. These are caused by the rapid changes in hormone levels from taking the medications to stimulate the ovaries.
• Mood swings, usually following the start of the FSH injections. Many women report being more tearful than usual. Mood swings are also caused by the rapid changes in hormone levels.
• A sharp but fleeting pain when the egg collection needle punctures the ovaries at egg collection, and sometimes at other times during egg collection. This pain is due to movement of the ovaries.
• A small amount of bleeding from the vagina after egg collection where the needle went through the vaginal wall. A small amount of brown blood loss for one or two days is common.
• Sore ovaries for one or two days after egg collection.
• Nausea and not remembering the procedure are common side effects of the sedative and narcotic medications used during egg collection.
• Mild abdominal discomfort or bloating from the medications used to stimulate the ovaries, sometimes before but mainly after egg collection.
• There is a small chance of bleeding from the cervix after embryo transfer, on the day of transfer or the next day. This is not believed to affect the chance of pregnancy.



Risks for the woman

• **Respiratory depression** The medications used for egg collection can reduce the amount of air you breathe and thus the oxygen in your blood. We monitor your oxygen level during and after egg collection with a pulse oximeter. If your oxygen level falls too low, the doctor will stop collecting eggs and give oxygen. Very rarely you may require emergency drugs. Brain damage and death are theoretically possible, but so rare that no figures are available for IVF.

• **Pelvic infe ction after egg collection** Pelvic infection can occur when the egg collection needle carries bacteria from the vagina or the bowel into the abdomen, or transfers bacteria from a damaged Fallopian tube into the abdomen. Infection occurs in about 1 in 500 cycles. The chance of infection can be reduced by giving antibiotics after egg collection if the needle punctures a damaged Fallopian tube, the bowel or an endometriotic cyst.
• **Vaginal bleeding after egg collection** Vaginal bleeding of more than 100ml (half a cup) occurs in about 1 in 100 egg collections, but usually settles quickly.
• **Internal bleeding after egg collection** Puncture of a large blood vessel in the abdomen during egg collection occurs in about 1 in 1000 procedures. This would cause severe pain, and would usually occur before you went home. Another symptom of internal bleeding can be shoulder-tip pain caused by blood irritating the diaphragm.
• **Vaso-vagal reaction** There is a small chance of a vaso-vagal reaction at the time of embryo transfer. This is an involuntary reflex that causes the heart to slow, blood pressure to drop, and fainting. The embryo transfer is usually stopped and done at a later time.
• **Uterine infection after embryo transfer** Uterine infection after embryo transfer occurs in about 1 in 300 transfers. The symptoms are feeling sore or unwell, or a fever. Infection usually settles with antibiotics. There have been cases of damage to the uterus or Fallopian tubes, but this is very rare. Infection is likely to reduce the chance of pregnancy.
• **Ectopic pregnancy** When an embryo implants in a Fallopian tube, the cervix or the abdomen, it is called an ectopic pregnancy. Ectopic pregnancies can be dangerous because the placenta can burrow into a blood vessel and cause major internal bleeding. We can usually detect an ectopic pregnancy by the level of hCG in pregnancy tests and an early ultrasound scan, but not always. Symptoms include severe, localised abdominal pain.

Pain is your body's way of saying that something may be wrong. We need to know about any symptoms that might be concerning you.
- Fever and abdominal pain are the symptoms of infection– contact the clinic, your doctor or GP the same day.
- If you have more than a small amount of vaginal bleeding – contact the clinic, your doctor or GP immediately.
- If you feel pain after egg collection or shoulder-tip pain the day of egg collection – contact the clinic, your doctor, or GP immediately.
- If you feel sore, feverish or unwell anytime after embryo transfer, phone the clinic immediately.
- Localised abdominal pain when you are pregnant – contact the clinic, your doctor or GP immediately.

• **Ovarian Hyper-stimulation Syndrome (OHSS)** OHSS is the most serious risk in IVF. A mild form occurs into up to 20% of women and the severe form in one in a thousand women who have an egg collection. If it is not treated, severe OHSS can cause blood clots, stroke and even death.

Why it occurs in some people and not in others is unknown, but it only occurs after the ovaries have been stimulated and then exposed to hCG. It is more common in women who produce more follicles after IVF stimulation, and in women who have Polycystic Ovary Syndrome (PCOS). It seldom occurs until four days or more after the hCG trigger injection. It occurs more commonly in women who become pregnant. Physiologically, it occurs when fluid moves from the blood into the abdomen or the lungs.

Mild and moderate cases are usually treated with observation and pain relief, but more severe cases always require admission to hospital. In hospital you may be given intravenous fluids or have fluid drained from the abdomen. If you are a New Zealand resident any hospitalisation as a consequence of IVF treatment is free, but if you are not a resident you will be personally responsible for costs of being admitted to hospital.

We take several active steps to reduce the chance of OHSS. We also help you detect the beginning of OHSS by measuring your weight at embryo transfer and then asking you to measure it every two days.

If your weight increases by 2kg or more it may be an early sign of OHSS – contact the clinic the same day.

The following are possible symptoms of OHSS – if you have any of the these contact the clinic the same day:
- Increasing abdominal (tummy) pain;
- Abdominal bloating or swelling;
- Nausea or vomiting;
- Decreased urine output;
- Shortness of breath or difficulty breathing;
- Severe headache.

Because OHSS only occurs with fertility treatment, the symptoms could be misinterpreted as appendicitis if you see a non-fertility doctor. If you see another doctor, please tell him or her that you have just had ovarian stimulation for IVF, and ask the doctor to contact the clinic. You may take paracetamol (Panadol) to relieve the pain

• **Ovarian torsion** In about 1 in 2000 cycles an ovary becomes twisted around its blood supply which can cause severe and sudden pain and sometimes the loss of the ovary. It is more common in women who respond well to the IVF medications and who become pregnant. It is usually resolved by surgery to untwist the ovary.

Side effects and risks for men having Surgical Sperm Retrieval (SSR

About 5–10% of IVF procedures involve surgical sperm retrieval from the testes. Nausea and not remembering the procedure are the common side effects of the sedative and narcotic medications used during SSR.
• **Respiratory depression** The medications used for SSR can reduce the amount of air you breathe and thus the oxygen in your blood. We monitor your oxygen level during and after SSR collection with a pulse oximeter. If your oxygen level falls too low the doctor will stop and give oxygen. Very rarely you may require emergency medications. Brain damage and death are theoretically possible, but so rare that no figures are available for SSR.

- **Bleeding and infection** Bleeding and infection are possible complications of SSR, although they are rare. It is not uncommon to feel discomfort for several days, and good scrotal support and Panadol is advised.
- **Inflammation in the testes** SSR is likely to cause inflammation in the testes that could reduce future sperm production. It can also damage blood vessels in the testes. Up to 80% of men having SSR will have inflammation or pooling of blood (haematoma) at the site of the biopsy. Complete loss of blood supply and atrophy of the testes has been reported after a testicular biopsy. A repeated SSR procedure is more likely to be successful if it is done at least 6 months after the last procedure, suggesting SSR commonly causes temporary damage to the testes.

- If analgesic medications are used during biopsy they will affect your ability to drive safely, so you need to arrange transport home from the clinic. You cannot drive or use machinery during the next 24 hours, and we advise that someone remain with you for 24 hours after the procedure.
- If pain persists or recurs after SSR, contact the clinic immediately.

Longer term risks and IVF

- **Pregnancy and child birth** Obstetric problems such as high blood pressure, bleeding from the placenta (ante partum haemorrhage), low birth weight, and premature birth are higher in IVF pregnancies. The risks are higher for women over 40 years, and when using donor eggs, and not so high when using frozen embryos. You should take this into account when choosing a doctor or midwife for pregnancy care.
- **Multiple pregnancy** Having twins doubles or triples most birth-related risks to you and the babies. Transferring one embryo at a time almost eliminates the risk of twins, but not quite, because the chance of identical twins is higher after IVF than from natural conceptions. Around 2% of all births at Fertility Associates after transfer of one IVF embryo are identical twins. Identical twins carry a higher risk of complications for the children. For some people there is a remote risk of multiple pregnancy resulting from the fertilisation of an egg not retrieved during egg collection in addition to the embryo(s) transferred. See our Fertility Facts on Risks of Twins.www.fertilityfacts.co.nz
- **Cancer** Long-term followup studies have failed to show any association between fertility treatment and ovarian or breast cancer. Pregnancy provides some degree of protection against ovarian cancer.
- **Sperm and embryo storage** Frozen sperm and embryos are stored in thin plastic straws immersed in liquid nitrogen. Cross-contamination of straws by viruses such as Hepatitis or HIV is a theoretical risk although it has never been reported. As a precaution we store sperm for men positive to Hepatitis B or C or to HIV in a separate bank.
There is a very small risk that a liquid nitrogen bank will fail, causing the sperm or embryos stored in it to perish. Bank failure has been reported occasionally around the world. We take reasonable precautions but cannot be held responsible for the loss of sperm or embryos from bank failure.
- **Wellbeing of IVF children** The incidence of congenital abnormalities in children born after IVF or ICSI is about a third higher than for children conceived naturally, which means a chance of around 4 per 100 births instead of 3 per 100 births. Nearly all follow up studies have found IVF children normal in their physical, mental and social development, but this is still a subject of ongoing research. There is some evidence of a slightly increased risk of childhood cancers. This translates to less than an extra 1 case of cancer per 1000 of IVF children.
There is a slightly higher rate of chromosomal abnormality in children from ICSI, and male children may inherit their father's infertility.

See our Fertility Facts on the wellbeing of IVF children, including after ICSI. www.fertilityfacts.co.nz

Transfer of one embryo is now standard for women 40 years and younger, and strongly recommended for women 41 and older.

Decisions, decisions, decisions!

You and your doctor will need to make several decisions about your IVF cycle before you start treatment. These are recorded in the doctor's management plan, and those with an ethical aspect are also recorded in your consent form.

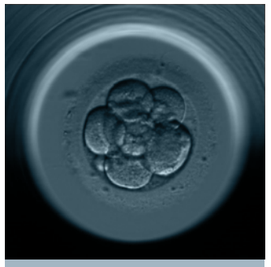
- **How many eggs to add sperm to?** On average 75% of mature eggs fertilise normally in IVF and ICSI. Unless you have an ethical objection to discarding 'poor quality' embryos or to freezing 'spare' embryos, we recommend you request to add sperm to all eggs.
- **How many embryos to transfer?** A woman's body is designed to carry one baby at a time. As we mentioned before, twins are associated with 2–3 times more risk for both the mother and child for a broad range of adverse outcomes, from maternal death, still-birth to cerebral palsy.

Transfer of one embryo is now standard for women 40 years and younger, and strongly recommended for women 41 and older. Single embryo transfer is required for almost all publicly funded treatment.

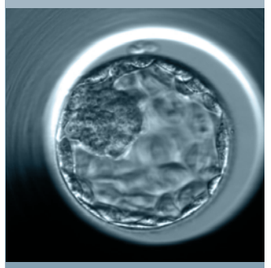
The important facts to keep in mind are:

- Up to and including the age of 40, the chance of twins with two embryos back is around 25–30%
- Between the ages of 41 and 44, the chance of twins with two embryos is around 10-15%.
- Even with one embryo back, 2% of pregnancies are identical twins, and even identical triplets have been reported.
- With modern embryo freezing methods, 90-95% of embryos survive freezing and thawing. When the embryo survives freezing and thawing, its chance of pregnancy is very similar to that of a fresh embryo. Our own work, and the work of others, shows the overall chance of having a child is the same whether you put two fresh embryos back, or one fresh and one thawed – BUT transferring one-by-one reduces twins from 25% to 2% and hence is much safer.

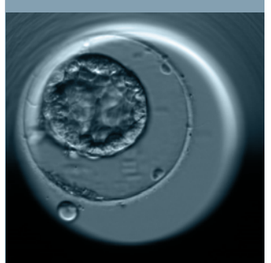
- **At what stage to transfer embryos?** Culturing embryos to blastocysts gives valuable information for embryo selection. Day 5 embryo transfer is our preference for fresh cycles. However, it may be beneficial to transfer the best embryo on day 3 if there are few fertilized eggs in the current cycle, or when embryo development was slower than average or lower than average in a previous IVF cycle.
- **Embryo freezing** Unless you have ethical objections, we recommend you request to freeze any good quality 'spare' embryos. We culture spare embryos to day 5, 6 or 7 so that only embryos that have demonstrated their ability to keep developing are frozen.



A day 3 embryo with 8 evenly sized cells, few fragments, graded A.



An expanding blastocyst (stage 4), with a clear clump of fetal cells (top left) (A), and a dense outer layer of placental cells (A), graded 4AA.



A 4AA blastocyst soon after thawing, before transfer. The blastocyst has contracted but will re-expand within a few hours.

Choosing the best embryo

EMBRYO selection does not increase the overall chance of a baby from all the embryos available, but it may reduce the time to pregnancy by transferring better embryos first. Day of transfer, embryo grading, timelapse imaging (TiMI) and pre-implantation genetic screening (PGT-A) are all ways of selecting embryos.

Day of transfer

It is only after day 3 that the embryo uses its own genes to drive growth. Only half the embryos picked as the best choice on day 3 turn out to be the best choice on day 5. If you have several fertilised eggs, it makes sense to wait until day 5, when embryos reach the blastocyst stage, to pick the best embryo to transfer. There is no extra cost for blastocyst culture.

What are the benefits of blastocyst culture?

- Blastocyst culture tells you more about the potential of your embryos
- It offers better selection than appearance on day 3
- Because of these advantages, we now only freeze embryos which reach the blastocyst stage

What are the risks?

- Though uncommon, it's possible for good embryos to stop growing in the lab unexpectedly, so there is no embryo to transfer. This is why we transfer embryos on day 2-3 when you have few embryos.

Day 3 grade	Typical appearance
A	7 or 8 cells, even-sized cells, little cellular fragmentation
B	6 or more than 8 cells, some cells uneven or cellular fragmentation
C	Fewer than 6, uneven cells, fragmentation
Blastocyst grade	**Typical appearance**
A	Many fetal and placental cells
B	Moderate number of fetal and placental cells
C	Few fetal or placental cells
Blastocyst stage	**Typical appearance**
1-2	Early blastocyst, with small fluid space
3	The fluid space fills the centre of the blastocyst
4	The blastocyst has started to expand its diameter
5-6	Some or all of the blastocyst has hatched out of its embryo shell

Embryo grading

Embryologists grade embryos according to their appearance and rate of development. Embryos are graded A to C on day 3, where A is the highest grade. For blastocysts, we use stage of development between 1 and 6, plus A-C for the size of the clump of cells that will give rise to the fetus, and A-C for the number of cells that will give rise to the placenta.

When an embryo is frozen, its grade doesn't change, although a blastocyst often contracts and may take a few hours to return to its original appearance. Generally, higher grade embryos have a higher chance of leading to a baby, but the difference between grades A and B can be quite small. Embryos that take 7 days to develop to a blastocyst or are grade C, have a lower chance of leading to a baby.

Time Lapse Morphometry Imaging (TiMI)

Photographing embryos every 10 minutes captures milestones in an embryo's development that would otherwise be missed.

What are the benefits?

- Embryos are cultured in an uninterrupted environment and do not need to be taken out of the incubator for inspection
- TiMI picks up unusual and detrimental events that would otherwise not be seen. This identifies 10-15% of embryos with very low potential
- Several studies show that using TiMI increases the chance of pregnancy using the first embryo transferred by up to 10%

Who may benefit?

- People who expect to have several good quality embryos
- People who have had low quality embryos in previous IVF cycles may learn why their embryo development was poor.

Aneuploidy screening (PGT-A)

Many blastocysts have the wrong number of chromosomes, which is called aneuploidy. The proportion of blastocysts with aneuploidy increases from 30% in women younger than 36 to over 80% for women in their early 40's. Most aneuploid embryos cannot result in a pregnancy, so it makes sense to exclude these embryos. Aneuploidy can also lead to miscarriage or occasionally the birth of an affected child (e.g. Down Syndrome)

PGT-A checks the number of chromosomes in each blastocyst by taking a biopsy of 5-6 cells. The blastocysts are frozen for later use, while the biopsied cells are sent to a specialist genetic laboratory for analysis. Blastocysts with a normal number of chromosomes are transferred later in a thaw cycle.

What are the benefits?

- Higher birth rate per embryo transferred
- Lower miscarriage rate
- Ability to screen embryos for chromosomal abnormalities that could result in having an affected child

Who may benefit?

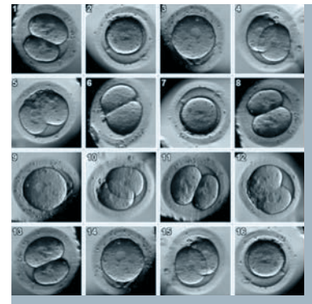
- Women 38 and older with good ovarian reserve
- Women who have had recurrent miscarriage
- People not pregnant despite the transfer of several embryos – PGT-A may uncover a higher than expected chromosome abnormality rate
- Patients who are willing to go through more than one egg collection cycle to obtain a normal embryo

Useful to know

- PGT-A can be used on embryos that have already been frozen, but some embryos will not survive the extra thawing, biopsy and refreezing
- PGT-A does not pick up specific genetic diseases or conditions

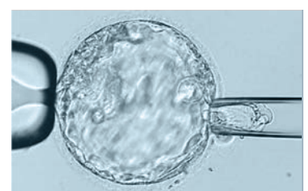
What are the complications?

- PGT-A is about 96% accurate – so prenatal testing is still recommended
- About 15% of embryos may give complex results because the biopsy contains a mixture of normal and abnormal cells
- Sometimes there will not be a result for a technical reason
- Some people will not have any blastocysts suitable for biopsy or any normal embryos to transfer.



TiMI

This image shows 16 embryos around the time they divide from 1 cell to 2 cells. The timing of the first few cell divisions is related to the chance of an embryo becoming a blastocyst.



PGT-A

In PGT-A , 5-6 cells are removed using a fine glass needle, shown on the right.

Add-on treatments

‘Add-ons’ or ‘Adjuvant therapies’ are names given to something extra that can be done at the same time as standard fertility treatment to try to increase the chance of success. Most have a reason why they might work but may be unproven or they are expensive for a small potential benefit.

THE STATUS of add-ons can change quite quickly with new information. Our Medical Directors have divided add-ons into three groups - possible benefit, low benefit or unproven, and evidence of no benefit. The HFEA in the UK have their own view on many add-ons, at **https://ifqlive.blob.core.windows. net/umbraco-website/1356/fertility-treatment-add-ons.pdf**

Reasonable evidence for a benefit, or low cost for a possible benefit
Your doctor may raise these options with you.

- **Artificial Oocyte Activation (AOA)**

AOA can increase the fertilisation rate of eggs. It is limited to couples with no or low fertilisation in a previous ICSI cycle.

- **Endometrial receptivity Assay (ERA)**

ERA looks at 250 genes that are active in a sample of endometrial tissue at the time implantation is expected. If gene expression does not match what is expected, then the day of embryo transfer can be adjusted. There is some evidence this is useful for people who have not become pregnant after the transfer of 2 or 3 embryos.

- **Embryo Glue** Embryo Glue is a natural substance called hyaluron which is added to the culture medium at embryo transfer. There is reasonable evidence that it increases pregnancy rates, so we do use it routinely at no extra cost. Embryo Glue is standard at Fertility Associates but is an add-on at some other clinics.
- **Intrauterine infusion of hCG** The infusion of a small amount of the hormone hCG shortly before embryo transfer has been found to increase the chance of a live birth in several studies. The infusion seemed to be more effective for transfer of fresh embryos than thawed embryos. hCG may influence the level of growth factors in the uterus and the immune response of the uterus around the time of implantation.
- **Luteinising hormone activity (LH)**

IVF drugs reduce the amount of LH, so extra LH may improve the response to IVF drugs. There is some evidence that extra LH activity may increase the number of eggs in certain groups of patients.

- **Aneuploidy screening (PGT-A) in older women**

PGT-A checks the number of chromosomes in an embryo. Embryos with a normal number of chromosomes are more likely to implant and less likely to lead to miscarriage. The benefit shows up in women aged 38 or older. It is covered in detail in the section ‘Choosing the best embryo’.

- **Sperm Chromatin Structure Assay (SCSA)** SCSA measures DNA damage in sperm. Sperm DNA damage in general is associated with lower embryo quality and lower pregnancy rates. A high SCSA result suggests the man should pay more attention to lifestyle and diet before trying IVF again.

Platelet Rich Plasma (PRP) contains growth factors which may be useful for women with a very thin uterine lining during an embryo thaw cycle. Well controlled data is limited, and it is an option of last resort.

- **Testosterone** There is some evidence that 21 days or more of testosterone or dehydroepiandrosterone (DHEA) at a low dose may increase the chance of a live birth in women with low ovarian response to IVF medications. The cost is low, and it is unlikely to have an adverse effect.
- **Time lapse imaging (TiMI)** TiMI uses special incubators which photograph the embryos togive a continuous record of their development without disturbing them. TiMI is covered in detail in the section ‘Choosing the best embryo’.

Low benefit or unproven
We won’t raise these with you, but we can help provide them if you are keen.

Acupuncture Acupuncture at the time of embryo transfer has been associated with higher pregnancy rates in some studies but not others. A well controlled study found no difference between a short course of acupuncture and sessions using dummy needles away from acupuncture points. On balance, combined evidence no longer shows a benefit of acupuncture on pregnancy rates.

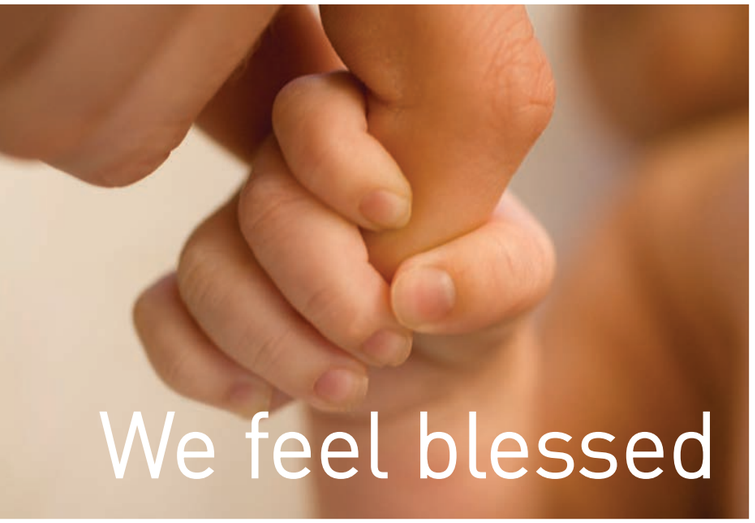
- **Coenzyme Q10 (Co-Q10)** Treating aged mice with Co-Q10 has a remarkable effect on their egg quality, largely cancelling the effects of aging. Preliminary studies have not shown an improvement in pregnancy rates in women. There is limited information on what doses or duration might be appropriate.
- **IMSI** IMSI involves looking at sperm under high magnification to choose sperm for ICSI. Sperm with irregular features in their head may be more susceptible to DNA damage. Although higher pregnancy rates were reported in earlier studies, later studies have not supported this.
- **Aneuploidy screening (PGT-A) in younger women** Although PGT-A should help to choose embryos more likely to implant and less likely to lead to miscarriage for women of any age, in practice it is of no or little benefit in women aged 37 or younger. Exceptions are after repeated miscarriage, or for embryo banking.
- **‘Colorado protocol’** This is a combination of four low cost add-ons around the time of embryo transfer - low dose aspirin to improve blood flow, low dose prednisone for immunosuppression, antibiotics to guard against low grade infection, and extra estrogen in the second half of the cycle. While some studies of the individual drugs show a benefit, the only well-designed study of all these drugs together showed no benefit.
- **Endometrial scratching** This technique arose from the observation that women who had an endometrial biopsy appeared to have a higher than expected pregnancy rate in a subsequent cycle. Recent well-controlled studies have not shown a benefit, and there is a slight chance of infection.

Reasonable evidence of no benefit
We discourage these.

- **Intralipid infusion** Intralipid is a fat emulsion of soybean oil, egg phospholipids and glycerine that has been used for intravenous nutrition since the 1960’s. Intralipid suppresses some components of the immune system. There is only one small published study, which showed no benefit.
- **Melatonin** Melatonin is a potent antioxidant, and levels in follicular fluid are related to IVF outcome. Studies are underway to see if taking melatonin can improve pregnancy rates, but the results are unknown. One retrospective analysis of use showed lower pregnancy rates in women using Melatonin.
- **Natural killer cell therapy** There is a theory that an abnormal immune response may contribute to unexplained infertility, recurrent miscarriage or not becoming pregnant with IVF. However, the immune system within the uterus is complex, and the expert conclusion is that any therapy trying to influence natural killer cells should only be offered as part of university-based resarch.

Here you will find stories our patients have chosen to share with you about their experiences with fertility treatment, the impact on their lives and the different ways they coped with treatment. These stories are written by them and are unedited – they are in their own words...

IN MY OWN WORDS



We feel blessed

Trying for a baby was an emotionally trying time for this couple, but they made it through with a little help.

MY HUSBAND and I were first offered information about the fertility clinic approximately 2 years after a miscarriage. We had a lot of mixed emotions and even wondered why we were not so fortunate to be blessed with one child, especially when you hear about so many neglected children in the news.

We applied for public funding and were not eligible until 2010. My husband had a low sperm count and I had no problems at all, therefore we were accepted due to the fact that we had been trying for five years with no success. It seemed like a lifetime to wait. I know sometimes Māori can tend to feel uncomfortable with public funding, but I can assure you that at no stage at all were we made to feel uneasy or less eligible for treatment.

I was very happy to finally get the call from the fertility clinic to let me know that my IVF treatment was to start in June 2010. The procedure was very quick once started. The hormonal drugs did have a few side effects for me, but we were always well informed of what to expect. It is a very emotional time and I found the best way for my husband and I to get through was to let my husband know how I was feeling. Although the female is the one who has to take all the drugs and cope with the side effects, I found my husband feeling helpless and wishing he could do more. Through my IVF cycle the Fertility clinic staff were very helpful and supplied plenty of information for what I was to expect next.

> Regular monitoring of the pregnancy made me feel a lot more confident about not having to face another miscarriage."

My husband and I managed to fertilise 8 eggs out of 12. We were informed of the condition of these embryos and were told that we had one that was growing nicely which was chosen to be transferred into the uterus. We were advised that the other embryos did not make it to blastocyst stage which did give me a slight feeling of emptiness. The clinic staff once again was very informative and advised us of the options we could take with these embryos.

The rest of the procedure was pretty straightforward and took a lot of patience. I found myself counting down the days just to hear 'Yes, congratulations you are pregnant', one of the happiest days of our lives.

The fertility clinic continued to be very supportive with regular monitoring of the pregnancy which made me feel a lot more confident about not having to face another miscarriage.

My personal view, being Māori, found that the fertility clinic staff were always warm and understanding which made us feel confident in all our decision making. I was very comfortable and asked a lot of 'what if' questions which were always answered with all possible outcomes.

My husband and I are very grateful to finally be blessed with our baby thanks to the help of all the staff at the fertility clinic.

Our Pathway...

QUICK FACTS

If you haven't had an IVF cycle before, then your AMH level is the best predictor of the number of eggs you will obtain from the stimulation medications, and hence your chance of having a child.

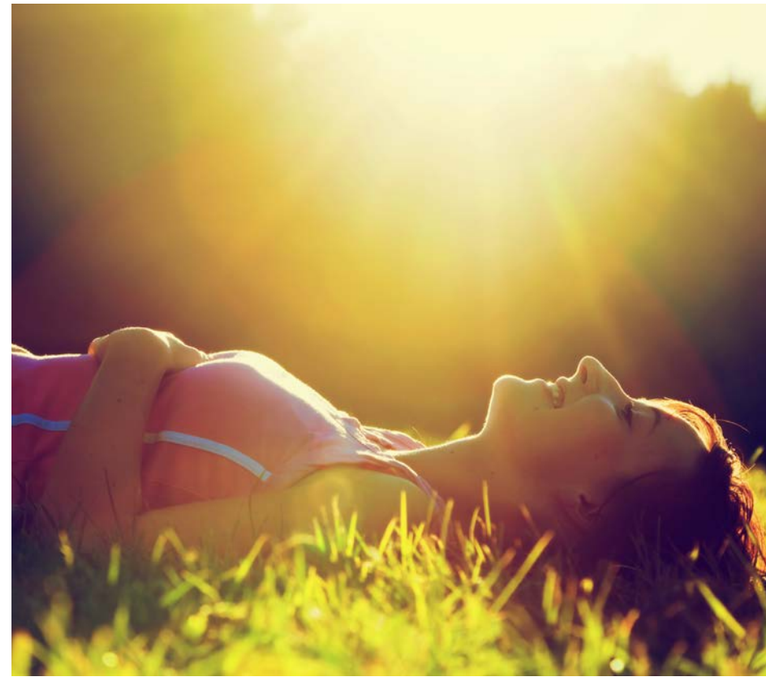
Success with IVF

EVERYBODY wants the know their individualised chance of having a baby from IVF. Two factors contribute more than any other – the woman's age at egg collection and the number of eggs collected. The number of eggs collected is a measure of the what is called the woman's 'ovarian reserve'.

There are other factors but they are less important. The cause of infertility is seldom important unless none of the sperm are moving, or the woman has endometriosis that has affected the number of eggs left in her ovaries. Having a higher BMI can mean a woman needs more medications but it doesn't usually affect the chance of becoming pregnant. Higher levels of sperm DNA fragmentation probably reduces the chance of pregnancy and may increase the chance of miscarriage, but it is difficult to make accurate predictions for an individual couple.

Ways of measuring success

There are many ways of expressing IVF success rates. We think the most useful approach is to show the chance of having a child from a single IVF cycle. This is also the view of New Zealand's patient support society, Fertility NZ – see the text box p77 entitled 'Chance of a baby in simple numbers'. If you have frozen embryos from your IVF cycle, you will also want to know the chance that thawing an embryo will result in a child.



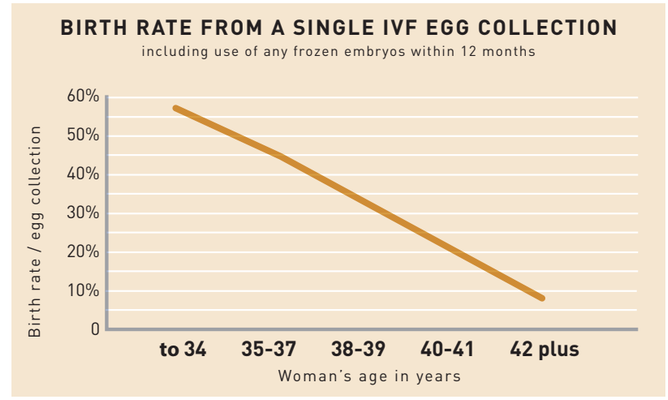


Figure 7.

Success from a single IVF cycle

Figure 7 shows the chance of having a child from a single IVF cycle according to the woman's age. This graph is based on all egg collections at Fertility Associate's clinics for the last 3 years for which we have full birth data.

No one who tries to become pregnant naturally gives up if it doesn't happen in the first month of trying – becoming pregnant is a numbers game with overall chance of success increasing each time you try.

Some of these women became pregnant from a fresh embryo transfer. Others did not have a fresh embryo transfer for safety reasons or did not become pregnant from a fresh transfer, but became pregnant from using a frozen embryo within 12 months of their IVF egg collection. The graph also includes women who had an egg collection but didn't have any embryos to use. The graph doesn't include the 10% of women who started an IVF cycle but stopped before egg collection. When IVF is stopped it is usually because of a low response to medications. It is usually better to stop the present IVF cycle and start again using a higher dose of medications or use a different stimulation method. If you stop an IVF cycle before egg collection, you just pay for the medication, blood tests and scans. If your treatment is publicly funded, you can usually have another attempt.

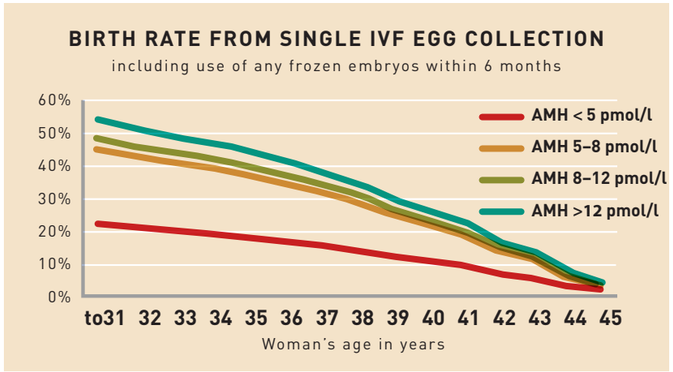


Figure 8.

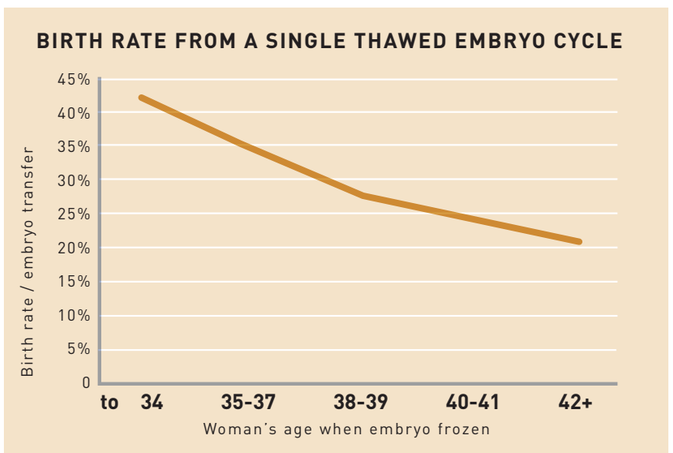


Figure 9.

Effect of ovarian reserve

If you haven't had an IVF cycle before, your AMH level is the best predictor of the number of eggs you are likely to obtain from an IVF cycle. Figure 8 shows that the chance of success is similar for AMH levels above 5 pmol/l.
If you have had an IVF cycle before, you will have some idea about how many eggs to expect next time. However, the number of eggs collected between one IVF cycle and the next can vary considerably. As a rough guide, 80% of people will get the same number of eggs plus or minus 3 eggs. So, if a person got 8 eggs in her first cycle, she can expect between 5 and 11 eggs in the next cycle.

'Poor response'

When you get few eggs from IVF it is commonly called a 'poor response' in the medical literature. This is nearly always determined by your body's inbuilt response to Follicle Stimulating Hormone (FSH). The usual approach in the past was to use more FSH in the next IVF cycle, but there is now good evidence that this has little benefit. It is often better to use a low dose of FSH or alternative milder medications such as Clomiphene or Letrozole – and accept that your number of eggs will be lower than average. Women who only get 1 or 2 embryos have about half the birth rate shown in Figure 7, which is still acceptable for many people. An alternative is to consider receiving donated eggs.

Success using thawed embryos

The chance of success with a thawed embryo depends on the age of the woman when the eggs were collected to make the embryo. Figure 8 shows the chance of a child from a single embryo transfer, based on all embryos thaws at Fertility Associates clinics in the last 3 years for which we have full birth data. About 95% of embryos survive freezing and thawing and so are available for transfer.

Cumulative success rate – the power of persistence

No one who tries to become pregnant naturally gives up if it doesn't happen in the first month of trying – the overall chance of success builds up each time you try. This is called the cumulative birth rate. The same applies to fertility treatments like IVF. Fortunately, if you do not become pregnant from your first IVF cycle, the chance of success in the second or third cycle is just as good. The power of trying more than once is illustrated by our 'Fertility Cover' programme.

In this programme people pay an upfront fee for up to three egg collection cycles of IVF or ICSI treatment, and they receive a 70% refund of the total fee if they do not have a baby. Fertility Cover applications are open to women up to the age of 39 who have an AMH of 5 pmol/l or more. They can have had up to 2 unsuccessful cycles of IVF beforehand. Over 400 couples have completed our Fertility Cover programme, and 85% have had a baby.

How do we compare?

It can be difficult to compare results from different clinics because there are a variety of ways that success can be expressed. The Australian government has funded a website called YourIVFsucess.com.au to provide independent information in a uniform way. Data for New Zealand clinics are excluded, but we provide FA data in a similar format on the success page of FA's website.

Chance of a baby in simple numbers

The following statement captures Fertility NZ's preferred way of reporting success rates.
For 100 women aged 37 and younger who start a single IVF cycle at Fertility Associates:

- **93 will get to egg collection.** The other 7 will stop because their response to the medication was too low. Of these, 4 will start another IVF cycle later at a higher dose of medication.
- **40 will have a baby.** Some will have this baby from the transfer of a fresh embryo while for others it will come from using a frozen embryo either because they did not have a fresh embryo transferred for safety reasons, or because they did not become pregnant from a fresh embryo transfer.
- **9 of the 40 will have a second baby 2 or 3 years** later from using any further frozen embryos from that IVF cycle.
- **At the age of 40**, the number of women getting to egg collection will be 93 out of a 100, and 20 will have a baby from this single IVF cycle.
- **At the age of 43**, then number of women getting to egg collection will be 91 out of 100, and 6 will have a baby from this single IVF cycle.

These chances are very similar whether it is your 1st , 2nd or 3rd IVF cycle, unless some major problem or issue shows up in your 1 st IVF cycle. The averages will be lower for people with low ovarian reserve, such as an AMH level less than 5 pmol/l, or who have particular features in their infertility, such as no motile sperm or severe endometriosis on the ovary. Your Fertility Associates doctor will estimate the impact for you.

Step-by-step through IVF

You've decided to begin IVF treatment – so exactly what happens before, during and after?

Planning ahead

As we discussed earlier in this booklet, there are two basic types of IVF stimulation. Those that start with the pill and those that don't. If you are not going to be using the pill, please call your nurse 2-3 weeks before you expect your 'day 1' period. By doing so you will have plenty of time to get organised so that starting IVF once you have your period won't be such a rush.

Many people want to plan their IVF cycle even further ahead around work or other commitments; it often helps to involve your doctor's nurse when you make your plans. The clinics close for a short time over the Christmas-New Year break, which may mean treatment will be extended by a week or two.

If your IVF cycle is going to be publicly funded, we will contact you 3-4 months ahead of the month in which you are booked to check that you are ready to start as planned.

The 'day 1' call

Your day 1 call to the clinic is how you start your IVF cycle. Day 1 is the first day of your cycle that you wake up with your period. If your period starts in the afternoon then the next day is day 1.

Please call the clinic before 10:30 am on your day 1. If we are busy please leave a voice message. We will act on your message on Monday if you call our Dunedin clinic on the weekend, or if you call our Christchurch clinic on Sunday, otherwise we will act the same day. This also applies to public holidays except Christmas and New Year. The staff member who takes your call will arrange a time for you to call again, or for us to call you.

Following your day 1 call we double check a number of things – for instance your doctor's plan for your IVF cycle and that screening tests are up to date. We also work out key dates for your treatment.

We will give or send you a Day 1 letter which covers:

- Dates for starting medications, first blood test and first scan, and the likely week of egg collection.
- A cost estimate based on the doctor's plan.
- Information on payment options;
- A consent form for this cycle for you to complete.
- When you need to get back to us about payment and consent.

Your doctor's management plan

Your doctor writes an individualised management plan for each IVF cycle, which includes the types and starting doses of each medication; whether or not you are using ICSI; the planned number of embryos to transfer; the stage at which the embryos will be transferred, and any other special instructions.

Your consent form for the cycle will include the details of the doctor's management plan. You can complete the IVF part B consent form at home, sign, scan and email back to the clinic, or you can hand it in when you visit the clinic to pick up medications or when you have a scan.

- You will need to complete a new Part B consent form for each IVF treatment.
- You must complete Part B and return it to the clinic well before your egg collection.
- You can always change things later if you need to.

Paying for treatment

We will give you a cost estimate based on your doctor's plan when you start your IVF cycle. We invoice IVF in three steps – medications and monitoring when you first pick up your medication, egg collection and embryology when we confirm your egg collection time, and embryo transfer when we confirm your transfer time. Please feel free to call us with any questions.

For more information, see our:

- Separate fees guide.
- Paying for treatment section of our website: www.fertilityassociates.co.nz
- Fertility Cover website: www.fertilitycover.co.nz

About fertility medications

One of the first things you need to do in an IVF cycle is pick up the medications you need to get started. One of our nurses will go over how to self-inject, or give you a refresher if you like.

Many of the medications we use have a limited shelf life once they reach room temperature – the nurses will tell you how to store each medication you use. You don't need to keep the medications cold while you take them home. Because the medications are expensive, we try to minimise the cost by only issuing what is needed until your next blood test or scan. However, it is possible that not all medications will be used and that sometimes you may need to discard medications.

When medications are taken daily, they are usually taken in the evening. It is important to take these medications around the same time each day. We use the Salve app to remind you when to take your medications.

Do not worry if you have some 'break-through' bleeding if you are on a stimulation regimen using the contraceptive pill. This will not affect your response to the medications later used to stimulate the ovaries. It is also common to still have some bleeding when you start Gonal F, Puregon or Menopur.

Refer to our Medications section on page 16.

We will give you a specific instruction sheet for each type of medication you will use.

- The medication instruction booklets for both Gonal F and Puregon have a section at the back to record how much Gonal F or Puregon you have used and how much is left. We strongly recommend you use this.
- Unfortunately we are unable to credit unused medications at the end of treatment.

Counselling

We've mentioned counselling several times so far in this magazine. When you start IVF treatment is an ideal time to see one of our counsellors.

Did you know

While reading your way through this magazine, you will have come across a number of stories and insights from patients who have been through fertility treatment. We have named these stories "In my own words". These people have found it very therapeutic and helpful to write about their experiences and the impact fertility treatment has had on them, their relationships, their family and the way they live their lives. This may be something you could consider doing as you move through treatment. Whether you keep what you have written to yourself or share it with others is up to you. Remember, this is your story ... your words.

Keeping track of it all

"Life keeps throwing challenges our way. The positive is that with each hurdle we overcome the better we are at dealing with the next one. The last week has been very stressful due to dealing with our miscarriage grief, work stress and issues with our house and garage. Andy and I have been taking the time to thoroughly discuss each issue to decide on the next step for each one. It took time for me to let go and get on with things. I realised each thing I go through shows how rewarding other things are."

We will give you containers to store any used needles and syringes. You can bring them back to the clinic for disposal at the time of egg collection.

Blood tests and scans

We will tell you when to start medications, when to have your first blood test, and when your first scan is likely to be. From the results of the blood tests and scans, we can tell how your follicles are growing and later, when to time egg collection. Along the way we may need to change the dose of medications.

There are a variety of places you can have blood tests taken – they include most cities in the North Island and several places in the larger cities such as Auckland and Wellington. These blood tests differ from other blood tests you may have had because we have special arrangements to ensure we get the results in time for making decisions each day. While on treatment, you will need to have your blood tests done by 9am.

Ultrasound scans are usually done between 8am and 9am, but times later in the morning can sometimes be arranged. Each clinic has its own way of recording when you arrive so that the doctor doing the scanning knows who is waiting – the nursing or reception staff will let you know how it works.

Ultrasound scanning uses an ultrasound probe placed in the vagina. You should have an empty bladder to allow the doctor to get the best possible view of your ovaries and the follicles growing in them.

Decisions

Every day that you have a blood tests or scan, we will get back to you with an instruction about what to do next. Our doctors, nurses and embryologists look at the results around lunchtime to make a decision. We usually send instructions by Salve, or call you when there is something more significant such as a change in medication dose or when it is time to trigger ovulation. On weekdays, expect a Salve message or call by 4pm. Check weekend hours with your nurse. The nurses do not go home until they have checked that Salve messages have been sent or calls made.

- The Salve app is a great way to remember the instructions and information we send, and will remind you of medications, blood tests and scans.
- We have found that when people call the clinic instead of us calling them, many calls get diverted to voice mail because staff are already speaking to other patients. We then need to listen to voice messages instead of answering new calls.
- Please phone the clinic if you have not heard from us by 4:30pm.
- You must be able to be contacted by the clinic every day from the time you start ovarian stimulating medications such as Gonal F, Bemfola, Puregon or Menopur, until the day of embryo transfer.

- If you are not available between 2pm and 4:30pm, we need to know where we can leave a confidential message for you.
- Once you start a GnRH agonist (eg. Decapeptyl or Lucrin) or a GnRH antagonist (eg Cetrotide or Orgalutran), you must keep taking it every day until your hCG trigger injection.

If only one or two follicles develop, or if the hormone levels from the blood tests are low, it may be better to stop and try again later using more medications. Occasionally treatment may be stopped for too great a response to the medications. If you have a low response during a publicly funded cycle we will make the decision whether to stop and whether we can offer you another publicly funded cycle.

We will always discuss options with you before any decision is made. Although it is very disappointing to have to stop treatment, you will benefit from what has been learned for future treatment.

Egg collection

The final maturation of the eggs is induced by a trigger injection of the hormone hCG or Decapeptyl. This is given 36 hours before egg collection is planned, so it is given usually between 8pm and midnight. We can tell you the time for your egg collection when we arrange the time for your trigger injection. We will give you some specific information before egg collection such as:

- The trigger injection instructions;
- Preparing for egg collection.

We usually ask you to arrive at the clinic 30 minutes before egg collection is planned. This allows time to go over your consent form. You will probably be at the clinic for a total of 2-3 hours. We encourage you to bring a support person - such as your partner or a friend. You will need to arrange any childcare to cover the duration of egg collection and recovery afterwards – the clinic's treatment and recovery areas are not suitable for children.

- Do not have anything to eat for six hours before egg collection is scheduled and do not have anything to drink two hours beforehand.
- The analgesic medications used during egg collection affect your ability to drive safely so you need to arrange transport home.
- You cannot drive or use machinery for the next 24 hours after egg collection.
- Someone must take you home and be with you for 24 hours after the procedure.

Some bleeding from the vagina is common after egg collection. If bleeding is heavy, or lasts longer than a day, contact the clinic. Cramping is normal in the first few hours after egg collection. We recommend taking Panadol every four hours, and you can use Paracetamol and Codeine (Pandadeine) if you need more relief. Contact us if this is not enough for your pain.

Egg collection is usually performed under light narcotic analgesia – the woman is awake, although she may not remember the procedure well afterwards. Doctors often use local anaesthetic around the cervix as well. Women who anticipate or have experienced a painful egg collection may want to consid er using heavier sedation. This involves an anaesthetist giving a different combination of drugs and more intensive monitoring. The anaesthetist will charge a separate fee. Heavier sedation also depends on the availability of an anaesthetist at the time of your egg collection. Public funding covers extra sedation if there is a medical reason for it.

→

The wonder of IVF

"The whole wonder of IVF and how it all works was a real mystery to me when we first arrived in the waiting room. The receptionist was friendly and light-hearted. The first meeting with a specialist was really good – he was professional, matter-of-fact, but not cold. When I burst into tears with relief when he said IVF was our best chance he simply handed me the tissue box and continued talking while I listened and blubbered. I think being Māori has meant that, for me, openly crying isn't an issue (due to all the tangi we attend!) The nurses are great. Lean on them and ring them if you have questions/need instructions again or whatever. I was told, 'there's no such thing as a stupid question' when asking something that I thought must be obvious to everyone else but me."

Pain is your body's way of saying that something may be wrong. We need to know about any symptoms that might be concerning you. See Risks for Women, page 68.

Sperm sample

Donor Sperm: We always use frozen donor sperm so you will have decided on your donor well before starting the IVF cycle. ICSI is often used with donor sperm. You can skip the rest of this section.

Sperm quality is best if the sample is collected within one hour of giving it to the embryology staff. You can produce the sample at home before the egg collection or you can provide it at the clinic – we have rooms available in each clinic. Please tell us where you are going to be during the day in case we need to contact you about the quality of the sample.

We advise one to two days of sexual abstinence to optimize the number and quality of sperm. Periods of abstinence longer than this can be detrimental because of the accumulation of aged sperm.

- We have a semen analysis instruction sheet with detailed information about providing a semen sample.

- We discourage the use of lubricants because even small amounts can be relatively toxic to sperm. There is one lubricant that is relatively 'sperm-friendly', known as 'Pre-Seed'. Clinic staff can give you more information.

If you are concerned that you may be unable to produce a semen sample on the day, we may be able to freeze a backup sample. This needs to be done well in advance so we can see how well the sperm survives freezing and thawing. There is a separate charge for sperm freezing unless it is done for medical reasons as part of publicly funded treatment. You will also need to complete a consent form for freezing and using the frozen sperm.

Although your doctor will have decided in his or her management plan whether to use conventional IVF or ICSI, sometimes sperm quality on the day of egg collection is different than expected. The embryologist may then suggest ICSI to give the best chance of fertilisation. The consent form covers this possibility and reminds you that if we need to do ICSI on the day then an ICSI fee will be charged. We will only do ICSI on the day if you have consented for us to do this, and we will try to contact you beforehand.

Donor egg and partner sperm: Bringing the sperm sample to the clinic is a good opportunity to go over the embryology options on the consent form.

Hormone support

Following egg collection, the nurse will talk to you about taking progesterone as vaginal pessaries or gel over the following two weeks to maintain the lining of the uterus.

The progesterone usually comes in the form of 'micronised' progesterone pessaries with the trade name 'Utrogestan'. 'Crinone' is an alternative form of progesterone that comes as a gel in a pre-filled applicator. All women will get a slight discharge when using Utrogestan or Crinone. Please tell us if irritation occurs.

We will give you some specific information at this stage covering:
- Care after egg collection;
- Hormone support;
- Ovarian Hyper-stimulation syndrome (OHSS).

- Sometimes women have some bleeding before their pregnancy test is due – this does not necessarily mean than you are not going to be pregnant.
- Do not stop using the pessaries or gel until we tell you the results of the pregnancy test. If you are pregnant, you will need to continue taking the pessaries or gel until we tell you it is safe to stop.

Embryo transfer

At the time of egg collection the embryologist will have arranged a time for you to ring to find out how many eggs have fertilised. At this stage we may be able to confirm a time for the embryo transfer. Embryo transfer may occur between day 2 and day 5 after egg collection, depending on the number and quality of the embryos.

You will need to arrive at the clinic about a quarter of an hour before the embryo transfer is scheduled. Embryo transfer is usually painless, very seldom needs any medications, and usually takes about a quarter of an hour. This is a special time for most people and you will probably want to have your partner or a support person present. You will be able to see a photograph of your embryo, and can send you a copy.

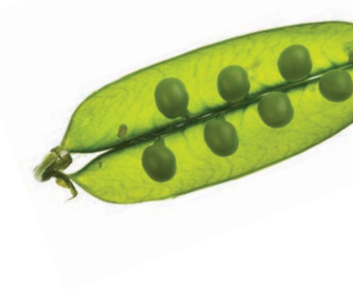
Please drink enough to have a comfortably full bladder for embryo transfer – this can help make the transfer easier; especially as we use ultrasound to help place the catheter containing the embryos.

Afterwards you can continue your normal activities – the embryos will not drop out! We do not think intercourse will do any harm.

Once the embryo culture is completed, your embryologist will send you a letter summarising the number of eggs collected, how many fertilised, and if any embryos were suitable for freezing after embryo transfer.

Waiting for the pregnancy test

Most people say that waiting to see whether they are pregnant is the most stressful part of treatment. Please feel free to make an appointment to speak with a counsellor if you would like some extra support during this time.



Freeze-all

Sometimes your doctor will recommend freezing all suitable embryos rather than having a fresh embryo transfer – this is commonly called 'freeze-all'. Freeze-all is recommended when the lining of the uterus may not be optimal for the embryo to implant in the fresh IVF cycle, or when the risk of the Ovarian Stimulation Hyper-Syndrome (OHSS) would be increased if you became pregnant in the fresh IVF cycle. The overall chance of having a child from your IVF cycle is not reduced with freeze-all; it just means your first embryo transfer is delayed. A thawed embryo cycle can often start immediately after your IVF cycle.

Frozen embryos – what is different from an IVF cycle?

Using frozen embryos is much easier than making them, but there are a few differences between having fresh and frozen embryos.

Type of cycle

There are two approaches: transferring the thawed embryos at the right time in a natural menstrual cycle, or creating an artificial or 'Programmed' cycle using medications.

Using a natural cycle involves daily blood tests starting 7–11 days after your day 1 and continuing until we detect the LH surge which tells us when ovulation will occur. The starting day for the blood tests depends on the average length of your menstrual cycles, and how much your cycle length varies month to month. Once we know the day of ovulation, we will work out the appropriate day for thawing the embryo and for transfer. If having blood tests is a problem, then it is possible to use urinary LH kits twice a day at home instead (although the timing is not quite as reliable as with blood tests).

A Programmed cycle uses medications to mimic the hormones normally produced during a menstrual cycle – starting with estradiol to grow the lining of the uterus, and then adding progesterone to prepare the lining for the embryo. We usually ask for a blood test, and sometimes a scan, to make sure all is going as expected before starting the progesterone. When you become pregnant, the medications need to be continued until the placenta starts making the same hormones around the time of the early pregnancy scan at 7–8 weeks.

Pregnancy rates are similar using the natural menstrual cycle or a programmed cycle. Programmed cycles are useful for women who have irregular or long menstrual cycles, when having daily blood tests is inconvenient because of travel, if the local laboratory is not open 7 days a week, and for people who want to plan the day of embryo transfer in advance. Having a programmed cycle halves the chance of a thaw cycle being cancelled from 10% to 5%.

QUICK FACT

Embryo transfer with thawed embryos is just the same as with fresh so it might be useful to re-read the sections on embryo transfer and pregnancy test earlier in this magazine.

Several large studies suggest that using a programmed cycle increases the chance of the mother having high blood pressure (hypertension), preeclampsia, and bleeding after birth by about 4 per 100 pregnancies. The same studies showed there was no, or minimal, additional risk to the baby.

Your Fertility Associates specialist can give you information and advice on the relative advantages of a natural cycle, a natural cycle with additional medication, or a programmed cycle for your circumstances.

Planning ahead and day 1

It is essential to plan ahead if you or your doctor is considering using a Programmed cycle because the medications are best started on the first day of your period, although they can be started one or two days later if needed.

On starting each thaw cycle we will give you or send you a plan with the dates of any medications and blood tests, the invoice, and a consent form.

- You will need to complete a new Part B consent form for each thaw treatment.
- You must complete Part B and return it to the clinic well before the day your thaw is expected or planned.
- You can always change things later.

If you now live in a different city, your embryos can be moved to your local clinic. Transport needs to be arranged well before your day 1. Call the clinic for information and costs.

Embryo survival

About 90-95% of embryos frozen at the blastocyst stage survive freezing and thawing. If you had embryos frozen several years ago between day 1 and 3 of development (Pronuclear to 8-cell stage), the survival rate is around 70%. If you have more than one embryo stored, the embryologist will continue to thaw embryos until one survives unless you give us other instructions on the consent form. Nearly everyone has one embro transferred at a time.

Because embryo survival can't be predicted, we like to tell people whether there is any embryo to transfer before they start their trip into the clinic. When we give you a time for the transfer, we will also give you a time to contact the clinic, or for the clinic to contact you, to say whether the embryos have survived and to confirm a time for transfer.

Embryo transfer and review

Embryo transfer with thawed embryos is just the same as with fresh so it might be useful to re-read the sections on embryo transfer and pregnancy test earlier in this magazine.

Generally people don't come back to see their doctor after each thaw cycle, but wait until they have become pregnant or have used all their embryos. However, you are very welcome to make a review appointment at any stage with privately funded treatment.

Ending embryo storage

Some people face the difficult decision about what to do when their family is complete, or they want to end treatment, but they still have some embryos frozen. We discuss options in our Fertility Fact sheet called 'Ending Embryo storage'.

Did you know

The HART Act allows you to store eggs, sperm and embryos for up to 10 years unless approval has been gained to extend this period of storage. It is important that if you do have frozen material stored at a Fertility Associates clinic you keep in touch with us. One way to do this is to notify us each time your contact details change. You can find more information on the cost of storage in our separate fees guide.

Preimplantation Genetic Testing (PGT) with IVF

Embryos can be tested for a serious genetic disorder using PGT-M, PGT-SR, or they can be screened for the correct number of chromosomes using PGT-A. Only normal embryos are transferred.

Understanding the acronyms

- PGT Preimplantation Genetic Testing
- PGT – A: Preimplantation Genetic Testing – Aneuploidy
- PGT – M: Preimplantation Genetic Testing – Monogenic Disorder
- PGT – SR: Preimplantation Genetic Testing – Structural Rearrangement

Who can have PGT-M or PGT-SR?

In New Zealand PGT is permitted for:

- Serious conditions where a child has at least a 1 in 4 chance of inheriting the condition.
- Chromosome abnormalities associated with recurrent miscarriage or advanced maternal age
- Ethics Committee approval is required for other reasons, such as 'saviour siblings'.

PGT can't be used for social reasons such as sex selection in New Zealand.

Who can have PGT-A?

Anyone having IVF or ICSI can consider having PGT-A. It is possibe to do PGT-A at the same time as PGT-M or PGT-SR. PGT-A may be more suitable for:

- People with many good quality embryos, to provide extra embryo selection
- Women aged 38 and older, because the chance of having the wrong number of chromosomes in an embryo increases from the age of 36.

How does PGT work?

People wanting PGT undergo IVF in the usual way. On day 3 of embryo development, a small hole is made in the soft shell of the embryo (called the 'Zona Pellucida') using a laser. About five cells are gently removed from each embryo, usually on day 5 (called 'blastocyst biopsy'), and then the embryos are frozen. The cells are sent to a PGT laboratory for analysis. We commonly use Canterbury Health Laboratories in Christchurch or Monash IVF in Melbourne. The PGT lab tests the cells from each embryo and tells us which embryos are normal. Normal embryos can be thawed and transferred to the woman later.

Getting prepared for PGT-A

The option of using PGT-A in IVF treatment is discussed on page 73. You will need to decide whether to do PGT-A when you start your treatment cycle. If there is only one embryo suitable for PGT-A some people decide to have an embryo transfer instead of doing PGT-A, so we start luteal support to give this option. All PGT-A is privately funded. In addition to the standard consent form, there is a Fertility Associates consent form for PGT-A, and a consent form from the PGT lab too.

When is PGD-M or PGT-SR used?

PGT-M is used to detect disorders caused by a change in a single gene (the M stands for monogenetic). Examples include Cystic Fibrosis (CF), Huntington's Disease, Beta-thalassemia, Fragile X Syndrome (FXS) and Spinal Muscular Atrophy (SMA).

PGT-SR detects structural rearrangements of parts of a chromosome, where part of one chromosome is swapped with a part of another chromosome (called a translocation), or part of a chromosome is missing.

Getting prepared for PGT-M or PGT-SR

Unlike PGT-A, there are some extra steps when you are using PGT.

- **Genetic counselling** Genetic counselling is offered by the Regional Genetic Services. It covers the pattern of inheritance of the family's genetic condition, the chance of a child inheriting the condition, the impact of the condition on a child and their family, the alternatives to PGT and the implications of using PGT.
- **Clinic counselling** You will also need to see a Fertility Associates counsellor before PGT treatment to understand the issues that accompany IVF treatment.
- **Feasibility studies** For most monogenic disorders, the PGT lab will want to check that they can reliably detect the disorder for the particular family. This is called a feasibility study. It involves sending blood samples from the man and woman, and sometimes from other close family members, to do a trial run using blood cells instead of embryo cells. It may take several months for the PGT lab to identify suitable genetic markers for the family.
- **Planning ahead** Treatment is usually planned 2–3 months ahead to give the PGT lab time to buy and test the genetic markers.
- **Consent** In addition to the standard consent for IVF, there is a Fertility Associates consent form for PGT, and a consent form from the PGT laboratory too.
- **Paying for PGT** Most PGT-M or PGT-SR is publicly funded, covering up to 2 cycles of treatment. We will advise you of the cost well ahead if you are having private treatment. If treatment is stopped before PGT, the PGT labs usually charge a cancellation fee to cover the costs of their materials.

PGT risks and problems

- **Embryos unsuitable for biopsy** Some embryos may not be suitable for embryo biopsy because they do not reach the right stage of development. These embryos are very likely to be abnormal.
- **Embryo damage** About 1-2% of fresh embryos are damaged during embryo biopsy. If the embryos are already frozen, then the overall damage rate for thawing the embryo, biopsy, and then refreezing the embryo is around 10%.
- **Transport problems** It is possible that samples may be lost or damaged during transport to the PGT lab. Fertility Associates takes responsibility for the steps that take place in our clinic. The courier is responsible for the transport of cells, and the PGT lab for the PGT analysis and giving results. Our fees do not cover any insurance to cover loss or delay of cells during transport. We can put you in touch with the courier company if you wish to consider insurance.
- **No result** Sometimes the enzyme and chemical reactions in PGT or PGT testing do not occur as expected. About 5% of embryos have an inconclusive result.
- **Wrong diagnosis** Although PGT laboratories use clever strategies to reduce the chance of misdiagnosis, PGT is only 95% accurate. Consequently, we strongly advise people to follow up PGT and with pre-natal diagnosis using CVS or Amniocentesis when they become pregnant. The chance of misdiagnosis by CVS or Amniocentesis is much lower because many more cells are tested. Prenatal diagnosis is about 99% accurate.
- **Mosaic result** Sometimes some cells in the embryo have the right number of chromosomes while other cells have an abnormal number. This is called embryo mosaicism. When this happens, your doctor will discuss the results with you. Some mosaic embryos can be transferred. There is separate counselling and consent if you want to consider using a mosaic embryo.
- **Correct diagnosis, but other abnormalities** PGT-M and PGT-SR only tests for the particular genetic disorder, and PGT-A only screens for the correct number of chromosomes. It is possible for an embryo to have other genetic abnormalities.
- **No normal embryos** Sometimes all the embryos tested are abnormal so there are no embryos available for use.

Fertility preservation
including sperm and egg storage

People may want to bank eggs or sperm to help preserve fertility for medical or social reasons.

SPERM, eggs, embryos, testicular tissue and ovarian tissue can be frozen for people who face losing their fertility because of cancer treatment or another reason. Eggs can also be frozen by women who are concerned that their fertility will soon decline because of their age. Sperm can be frozen as backup for fertility treatment and as 'insurance' before vasectomy.

Techniques

• **Sperm freezing** Sperm freezing is straight forward and many men will have enough sperm in one ejaculate for several IVF cycles. If there are enough good quality sperm after thawing then the first approach may be to try IUI treatment, keeping some sperm in reserve for IVF later if IUI is not successful. If you want to consider IUI as an option, you will almost certainly need to freeze three or more semen samples.

• **Egg freezing** Egg freezing involves all the steps of an IVF cycle up to and including egg collection. Eggs are then frozen by a method called vitrification. When the woman wants to use the eggs, they will be thawed, and she will resume the second half of an IVF cycle – adding sperm to the eggs, embryo transfer, and freezing any spare embryos.

• **Embryo freezing** If a woman has a partner, they can freeze embryos rather than eggs. However, we usually recommend women freeze their eggs.

QUICK FACTS

Fertility preservation is a quickly growing area of reproductive therapy.There have been important advances in the past five years in egg freezing and ovarian tissue freezing and more are expected. For women freezing their eggs or ovarian tissue, their age at the time of freezing will remain one of the most important factors for subsequent success.

How many eggs can I expect?

If you have never had IVF before, your AMH level is the best predictor of how many eggs to expect from a single cycle of egg freezing. Age is less important. However, there is still a lot of variation between women, and from cycle to cycle in the same woman.

We've shown what to expect in Figure 10. The middle line shows the average number of eggs suitable for freezing according to the woman's AMH level. The lower line is the 10th centile, and the upper line the 90th centile. This means that 1 out of 10 women will get fewer eggs than shown in the bottom line and one out of 10 will get more than the upper line.

For instance, for women with an AMH level of 20 pmol/l, 10% will get 4 eggs or fewer (below the red line) while 80% will get between 5 and 15 eggs (between the red and green lines).

• **Ovarian tissue freezing** This technique involves removing one or both ovaries surgically and freezing thin slices of ovarian tissue. The slices are transplanted back to the woman once cancer treatment has finished.

Preparation

Most people facing fertility preservation before cancer treatment won't have enough time to make changes to lifestyle or to follow the tips for becoming 'fertility fit' (page 31). If you do have time before egg freezing, the key messages are – stop smoking, take folic acid, reduce caffeine and alcohol, and discuss medications with your doctor.

Screening

We will want to screen you for HIV, Hepatitis B and Hepatitis C. If we can't get the results in time, we can still bank your sperm, eggs or embryos, but sperm samples will be stored in an 'unscreened' bank with other untested samples. This is because there is a theoretical risk of cross-contamination of viruses from one sample to another, although it has never been reported.

Seeing a doctor You don't need to see a Fertility Associates doctor if you want to bank sperm, although we encourage you to do so if →

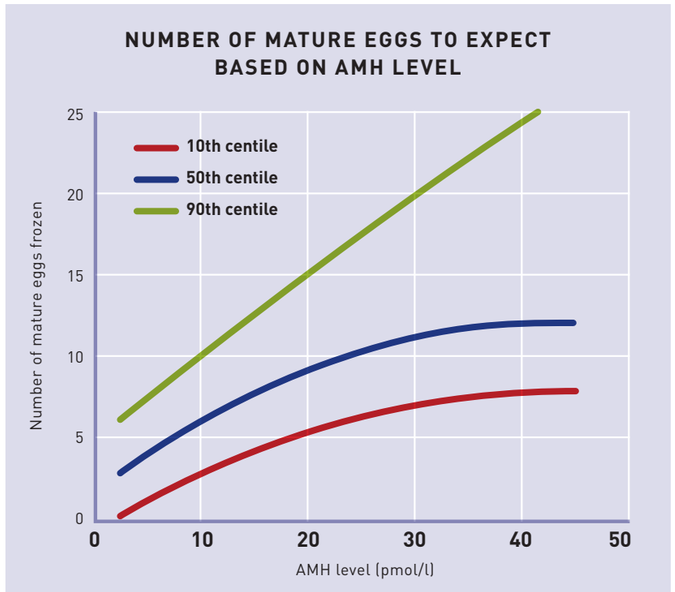


Figure 10.

Did you know

Options for fertility preservation may exist prior to and after cancer treatment. If you have time, it is valuable to speak to a fertility specialist before you start cancer treatment. Fertility preservation before cancer treatment may be funded through the public health system.

you have any questions or want to explore how your sperm might be used in the future.

If you are freezing eggs or embryos, then you will need to have a doctor at Fertility Associates look after you during treatment.

Seeing a counsellor

Our counsellors are here when you want to explore issues arising from storing sperm, eggs, or embryos, and when you need support.

The law

The Human Assisted Reproductive Technology (HART) Act limits storage of sperm, eggs or embryos to a maximum of ten years initially. The clinic can help you apply to the ethics committee if you want to extend storage before you reach the ten year limit.

You can't use sperm, eggs or embryos after a person's death unless the person has made it clear in their consent form they want this to happen. You can choose to leave sperm or eggs to your partner for them to use, your partner can't donate them to another person.

Consent

You will need to sign a consent form as part of banking sperm, eggs or embryos. Consent covers time limits on storage, your decision on who may use your sperm, eggs or embryos if you die, and who we can contact if you lose contact with us. We can give you a copy of your signed consent form on request. You can always change your consent form later, as long as the change relates to something that hasn't happened yet.

If you are banking eggs or embryos, then consent covers taking hormones to stimulate the ovaries and egg collection as well as storage.

Keeping in touch with the clinic

We will try to contact you each year to see if you still want to store your sperm, eggs or embryos. We may discard material if you become behind in paying storage fees, or we can't contact you after 2 years. We prefer automatic payments for storage fees because it helps us keep in contact with you. You must tell us if you change address.

Risks

Frozen sperm and embryos are stored in thin plastic straws immersed in liquid nitrogen. Cross-contamination of straws by viruses such as Hepatitis or HIV is a theoretical risk although it has never been reported. As a precaution we store sperm for men positive to Hepatitis B or C or to HIV in a separate bank.

There is a very small risk that a liquid nitrogen bank will fail, causing the sperm, eggs or embryos stored in it to perish. Bank failure has been reported occasionally around the world. Straws containing sperm, eggs or embryos may be handled while stored for various reasons, such as when retiring a bank or moving samples to a different bank location. There is a very small risk that handling could sometimes reduce the viability of frozen samples despite the care taken. Loss of samples during handling and moving has also been reported. We take reasonable precautions but cannot be held responsible for the loss of sperm, eggs or embryos from bank failure.

Obtaining eggs and embryos for storage carries the risks associated with the relevant parts of IVF treatment, which are covered on page 67.

Cost

Sperm storage before cancer treatment or similar treatment is nearly always publicly funded if you do not have a child already. You generally have to pay for sperm stored as back up for fertility treatment, and always for storage before vasectomy.

Egg or embryo storage before cancer treatment or similar may be publicly funded depending on the circumstances – most of the usual rules for eligibility for publicly funded IVF treatment apply.

Egg storage for social reasons and ovarian tissue storage needs to be privately funded; these prices can be found on our website.

Chance of a child using stored sperm, eggs or embryos

If you have frozen sperm, the type of treatment to use depends on the number and quality of the sperm stored. IVF and IUI pregnancy rates are the same using frozen sperm and fresh sperm.

If you have embryos frozen, the chance of pregnancy is similar to that from using fresh embryos. About 95% of embryos survive freezing and thawing.

Eggs are more prone to damage from freezing and thawing than embryos, and there is more variation in egg survival between individual women than there is for embryo survival. For some women 90% or more of their eggs survive, while for others the rate may be closer to 50-70%. If an egg survives, then most people have normal embryo development, but for a few embryo development may be poor. Unfortunately, there is no way to predict this.

The most important factors influencing the chance of having a child is your age when the eggs were frozen and the number of eggs or embryos available. Fertility Associates has a discounted fee for women who want to do a second or third egg freezing cycle.

Several experts have calculated the chance based on the number of eggs stored and the age of the women when she stored her eggs – an example is shown in Figure 11, using data from a scientific publication by Doyle and co-authors in the journal Fertility & Sterility. For instance, a 36 year old woman who has 8 eggs frozen is calculated to have a 45% chance of having a child using these frozen eggs.

Using frozen eggs

When you decide to use your frozen eggs, call the clinic and make an appointment to see your doctor. You and your doctor will then plan your cycle. The eggs will be thawed, fertilized, grown to the blastocyst stage and suitable embryos frozen at the blastocyst stage. When you have one or more frozen blastocysts, you'll be able to have an embryo transfer cycle. The time between your doctor's appointment and a thawed embryo transfer cycle is typically two months or so.

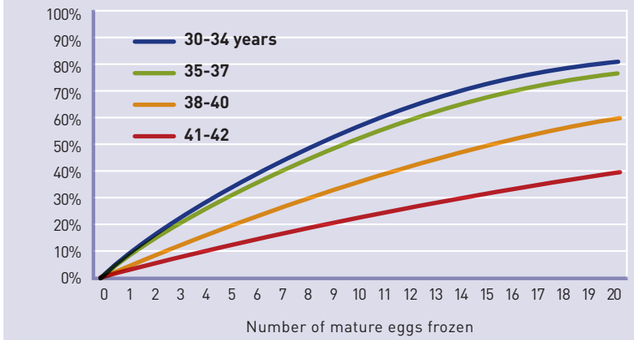
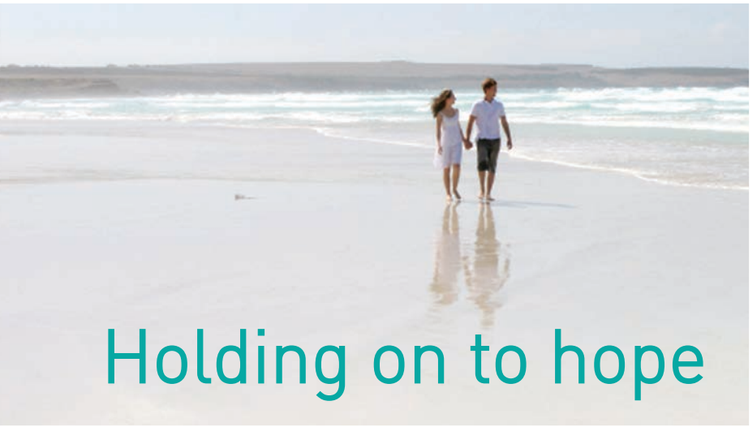


Figure 11.

Here you will find stories our patients have chosen to share with you about their experiences with fertility treatment, the impact on their lives and the different ways they coped with treatment. These stories are written by them and are unedited – they are in their own words...

IN MY OWN WORDS



Holding on to hope

WE FEEL LIKE such an ordinary couple, we met mid 20's and just followed the pattern all our friends were following. Marriage, a year overseas and home to buy our home – a small first home. Then we began to save to have a child.

It was fun trying for a child … for a while, but when nothing happened the fun went out of it. Finally we decided to go to our GP who was very nice and did some tests. Nothing showed so we were sent over to Hamilton Fertility Associates. I remember that first time sitting in the waiting room feeling so scared as we watched all these people coming in to wait and see the doctor and others with labels walking through. We did not know then but we were going to get to know the labeled ones quite well. The wait took forever. I know doctors always give the person with them the time but we were about 30 minutes late and by the time we went in were really tense. The doctor said we fell in the group of 'unexplained infertility'. That felt so bad, if you don't know the problem how can you fix it? Well, it got worse – not only that, but we hadn't been trying for long enough to qualify for public funding. Anyway we were to do some more tests and if that changed it the clinic would let us know.

More day 2 blood tests, then day 21 – I was just a pincushion. Another trip to Hamilton for a semen analysis – at least that was not my turn. And then a phone call from the doctor, the sperm had enough antibodies (like little caps) that it was going to be hard for us to get pregnant ourselves.

"Our group meets each month and we have a good gossip, sometimes we go for a walk or do something else. It's always good for me to do this, as women need to talk about things."

It changed our scoring, public funding, hurray, and we would get a letter telling us what next.

Sometimes 2 weeks of waiting for a letter is forever. If we knew about waiting what we do now we would have relaxed but our lives seemed to be around the letterbox. The letter arrived and we could plan for an IVF cycle with the sperm injection. Wonderful and of course we would be one of the lucky ones, we had had our share of bad luck.

It was really scary going to Hamilton to collect drugs and have counselling. Of course we didn't need counselling except the nurses really gave us a push. Thank goodness as we did need to sit down and talk about it all and that was our chance. We learnt a lot that day from the nurses and counsellor and met others at the education group. I am not sure how many couples go to the clinic but there are always different people in the waiting room and it is only at the blood tests you see the same people. Anyway I joined the group in our area. We meet each month, its mostly women in our group and we have a good gossip, sometimes we go for a walk or do something else. It's always good for me to do this, as women need to talk about things.

That cycle didn't work, so we had to use our frozen embryos. We read the book and it said a low chance of getting pregnant with frozen embryos so we were not too hopeful. 1st Frozen, 2nd Frozen, last Frozen…

We got a positive test, surely now things would be okay. We were so excited we told the world! We really wished we hadn't when two weeks later we began to bleed and miscarried. Our emotions were all over the place. On one hand we knew we could get pregnant, on the other we would have to go through it all again. AND it was almost a repeat. We had a lot of trips over to Hamilton, firstly for the IVF cycle, and then to have the fresh embryo put back, then a review and then a frozen cycle. We are pregnant again, from a frozen embryo and the difference this time is we have two embryos remaining still, just in case.

I don't think we will tell anyone this time until the 3 months is up, it's too hard untelling them. We don't plan or talk about it too much as even that feels scary. We do tick off every day and feel glad about another day without blood. Maybe, just maybe...

AFTER TREATMENT

- What happens now?
- Pregnancy test
- Early pregnancy care
- Miscarriage
- Unsuccessful treatment

What happens now?

Your treatment has been completed and you may be wondering where to from here?

Waiting for your pregnancy result

Nearly everybody agrees that waiting to see whether you are pregnant is the hardest part of fertility treatment.

Professor Jacky Boivin at the University of Cardiff is well known in the IVF world for her research into psychological reactions to infertility and its treatment. She has gone further than most researchers by trying to find out what can help; studying various interventions in a controlled, scientific way.

Surprisingly, there is one simple thing you can do which can make a big difference. She called it the PRCI (Positive Reappraisal Coping Intervention) but it's just 10 simple phrases, which we have listed below.

IVF patients who read this to themselves twice a day, every day between embryo transfer and the pregnancy test, had much higher scores around feeling positive, feeling less distracted, thinking about future plans, and sustained coping than other IVF patients who read 10 alternative phrases which had been used previously to promote a positive mood in a non-IVF setting.

If you want to know more, Jacky's paper is freely available at http://www.ncbi.nlm.nih.gov/pubmed/18628259.

QUICK FACTS

The Fertility Associates website has more information on both pregnancy and miscarriage. Visit the 'Planning for pregnancy' section at www.fertilityassociates.co.nz Here you will also find our online pregnancy wheel where you can create your own personalised pregnancy timeline which helps you to see when key events, such as feeling the baby move, happen over the coming weeks.

Jacky's instructions were to read the following at least twice a day (and more often if you want to):

During this experience I will:

- Try to do something that makes me feel good
- Focus on the positive aspects of the situation
- Find something good in what is happening
- See things positively
- Make the best of the situation
- Try to think about the positive things in my life
- Look on the bright side of things
- Try to do something meaningful
- Focus on the benefits, not just the difficulties
- Learn from the experience

Pregnancy test

We usually time a pregnancy test 14 days after insemination in IUI and egg collection in IVF. You'll need to have this blood test by 9am to be sure the results are available the same day. Many people want their nurse to telephone them during the afternoon to find out the result. Others want to share the moment with their partner or a support person – we can put the result in an envelope for you to pick up from the clinic.

Pregnancy care

If the pregnancy test is positive – congratulations! But it is natural to be a bit anxious as well as excited, because some pregnancies end in an early miscarriage. The chance depends on the woman's age, but we can usually give you a better idea from the level of the hormone hCG measured by the pregnancy test.

We prefer to look after you in early pregnancy until the 7-8 week ultrasound scan, and early pregnancy care is included in the cost of treatment for IUI and IVF. If you are using progesterone pressaries, such as Utrogestan or Crinone, we may schedule a day 18 blood test to see if you need to continue the pessaries for longer in an egg collection cycle. A day 18 test can help clarify an ambiguous pregnancy test result on day 14.

The 7-8 week ultrasound scan takes its name from the length of time after the start of your treatment, so it really takes place 5-6 weeks after ovulation in clomiphene treatment, IUI or egg collection. This is a vaginal scan. At the scan, the doctor is looking at the size and appearance of a sac in the uterus, the size of the tiny fetus and the rate of its heart beat, and whether there are twins. It is also important to check that the embryo has implanted in the uterus and not in the Fallopian tube or the cervix (the latter is called an ectopic pregnancy which needs to be treated).

If you prefer, or if it is more convenient, we can refer you to an ultrasonography service but you will need to pay for the scan.

- A little bit of bleeding is normal and occurs in up to half of continuing pregnancies. However, do give your nurse a call, and please don't stop Utrogestan or Crinone unless we tell you to. Very occasionally an ectopic pregnancy ruptures a blood vessel before the 7-8 week scan – the symptoms are usually sharp and severe pain.

  If this happens, ring the clinic or the doctor on call straight away, and unless the doctor can arrange for you to be seen at the Fertility Associates clinic, go to an emergency clinic. Tell the emergency clinic staff you are pregnant – because sometimes the symptoms are mistaken for appendicitis.

→

• If your blood group is Rh negative and you experience bleeding during pregnancy, please see your doctor. If some of the baby's blood enters the mother's bloodstream, the mother's immune system can produce antibodies which can negatively affect future pregnancies. Your doctor can arrange for you to have an Anti-D injection to prevent Rh antibodies in the future if this is needed. Whether you need Anti-D depends on what stage of pregnancy bleeding occurs.

For more information, see Fertility Facts on Pregnancy and Miscarriage. www.fertilityfacts.co.nz

Transfer of Care

The clinic's early pregnancy care focuses on the first 8 weeks of pregnancy to ensure you know whether the pregnancy looks healthy and whether you might have twins. It is then time to find a Lead Maternity Carer (LMC) to look after you during the rest of your pregnancy (see the coloured box on the next page).

Miscarriage

Sadly, about a quarter of positive pregnancy tests after treatment end in pregnancy loss. Nearly all occur before the 7-8 week scan or impending loss is apparent from the scan. Pregnancy loss occurs as frequently after natural conception as it does after fertility treatment, and nearly always is due to the embryo not growing as it should and so it is not preventable.

Common signs of miscarriage are bleeding, cramping that feels like period pains, and the loss of pregnancy symptoms. If you experience any of these or are concerned, ring your nurse at the clinic, and we can often arrange a blood test to give a better idea of what is happening.

Pregnancy loss early in pregnancy can be very hard to bear – it can be hard to tell people and they may not appreciate your grief from a loss that is very dear to you but which they may see as common and normal. This is a really good time to talk to or to see one of our counsellors, whether to talk about coping with how you feel or coping with other people.

Telling us the outcome

We are required by law to collect information on the outcome of most types of treatment, so we will call you or write to you to gather the information we need. Please let us know if you change your address or telephone number. More details relating to this are on the consent forms you will sign before starting treatment.

Not pregnant this time

You will naturally be sad, disappointed and maybe upset that treatment hasn't worked this time. If you are feeling sadder than usual, please call your nurse or arrange a time to talk with or see one of our counsellors. Don't underestimate how long it may take to recover your emotional balance, so be gentle on yourself.

We strongly encourage you to make a review appointment with your doctor after each IVF cycle, when you have used your last frozen embryo, or have finished your 'package' of clomiphene or IUI cycles. Even if you are not considering further treatment, it can be helpful to talk things over for a sense of closure. Doctors are often booked up 2-4 weeks ahead, so even if you don't feel like it at the time, it is good to book an appointment soon after your pregnancy test result. Some people make this appointment at the time of treatment, with the intention of cancelling it if it is not needed, which we think is a very good idea. A review appointment is free for publicly funded treatment, and it is included in the cost of IVF treatment.

For helpful resources around pregnancy loss, please visit www.fertilityassociates.co.nz/support-at-every-step

Pregnancy loss occurs as frequently after natural conception as it does after fertility treatment, and nearly always is due to the embryo not growing as it should and so it is not preventable.

Did you know

Once you reach 7 or 8 weeks in your pregnancy you will need to start thinking about finding a Lead Maternity Carer or LMC to look after you during your pregnancy and for the six weeks following the birth of your baby. There are several options available to you – a midwife, an obstetrician or shared care where you have both a midwife and obstetrician. To find out which option is right for you, talk to your friends and family about their experiences or ask your GP or Fertility Associates doctor. Some Fertility Associates clinics also offer obstetric services, and most carry a list of recommended midwives and obstetricians. For more information on pregnancy and finding an LMC, visit the Ministry of Health website at www.moh.govt.nz and search for 'Information for Pregnant Women'.

Here you will find stories our patients have chosen to share with you about their experiences with fertility treatment, the impact on their lives and the different ways they coped with treatment. These stories are written by them and are unedited – they are in their own words...

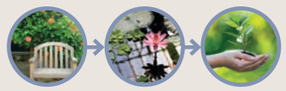
IN MY OWN WORDS

On being a donor

Whakapapa – ways by which people come into relationship with the world, with people, and with life – is of utmost importance in Māori culture.

THERE IS a lot to think about when being a donor. I know people who would love to be parents but cannot – coming from a large extended family it pains me to see this and if I can help even one couple to love and nurture a family that would be truly amazing.

I have had many influences growing up – Rosa Parkes, Martin Luther King, Mother Teresa, Dame Whina Cooper, The Lady 'Dame Te Ataairangi Kaahu,' but none were more important than my Nan. She is the reason I



"It's a great opportunity for any child to find their roots as it calms their need to know who they are."

am the way I am and it is she who taught me everything I know: respect for my elders, tikanga of the marae, protocol, etiquette, manners, love of my taha Māori and taha Pakeha, respect for all living things and most importantly to love ALL children despite what others think or say as you are the role model.

My Nan raised me because my Mum found it hard to raise me after my parents parted ways, so I grew up not knowing my father; but had the support of my Mum's brothers. Not knowing entirely who I was ….. why my hair was straight, why I am so dark, why I love ALL music, where I got my humour from ….. till late in my life was a huge obstacle in my life until I was old enough to find out (with my Mum and Nan's blessing). It took me a long time to understand that it wasn't something I had done that made me look and sound and act differently to the rest of my whanau, it was purely genetics – the mix of two people's understanding of one another, to make me.

I think it's a great opportunity for any child to find their roots as it calms their desire to 'need' to know who they are – whakapapa is everything in Māoridom – without knowing 'who' you are you close yourself off to more than just where you are headed, you close yourself off to where you have been, and if you have no idea of either you lose yourself. I know many who are or were raised in the same situation, including myself and I would not wish that on anybody – hence my wanting to be identifiable. For the child and young person they will grow to be.

USING A DONOR

- Donor and surrogacy basics
- Receiving donated sperm
- Becoming an egg donor
- Receiving donated eggs
- Donor embryos
- Surrogacy

Donor and surrogacy basics

About 5-10% of all fertility treatment involves donor sperm, donor eggs, donor embryos or surrogacy.

TECHNICALLY, donor treatment is just IUI or IVF using somebody else's sperm, eggs or embryos but there are important social, ethical and legal aspects to using a donor. This section covers basic information for both donors and recipients.

Types of donor treatment

The types of donor treatment, and the reason for their use, are summarised earlier in this magazine in the section called 'Pathways to a child', on pages 20–23 and are covered in detail in the present section.

What the law says about donation

There are two important laws applying to donor treatment in New Zealand.

• **Status of Children Act** This law defines who are the legal parents of a child. The woman who gives birth is always the legal mother, and her married partner, civil union partner or de facto partner is also a legal parent. A donor has no rights or liabilities for a child. This also means that a surrogate mother who carries a child for a couple is the legal mother until the child is adopted.

A single woman (called an unpartnered woman in the Act) who wants to become pregnant using a male friend has two options – the man can be defined as a donor, or he can become the legal father with all the rights and responsibilities of a legal parent. However, the man must take the option of becoming a donor if he already has a partner.

If a couple wants a male friend to provide sperm and to have legal rights, they will have to appoint him as a guardian of the child. This is because a child can only have two legal parents – who will be the woman who gives birth and her partner.

• **Human Assisted Reproductive Technology (HART) Act (2004)** This law describes how ART is regulated in New Zealand. It has three important aspects that relate to donors and to receiving donor sperm, donor eggs or donor embryos.

The HART Act gives people conceived in New Zealand using donor treatment, or surrogacy, the right to know the identity of their donor(s). Parents can find out the donor's name once the child is born, and a person can ask for the donor's name once he or she reach the age of 18, or 16 in special circumstances. The donor's identity can be found by asking the clinic, or through Births, Deaths and Marriages.

A donor conceived person can also ask to find out the names of others born in New Zealand and conceived using the same donor, but the others have to agree, or their parents have to agree if the person is younger than 18.

Donors can ask to know the names of people born from their donation, but the person has to be 18 or older and give permission. A person can say 'no' to the donor's request.

The ability to link people with their donors is possible because the clinic has a legal obligation to notify Births, Deaths and Marriages of the birth of each child arising from the use of donor sperm, eggs or embryos, and from surrogacy. We contact parents or the woman's midwife soon after the expected delivery to collect the information that is needed. Donors and parents of donor children have a responsibility to tell the clinic if they learn any new information about the health of a donor conceived person that may have been inherited so that it may be shared among other families using the same donor.

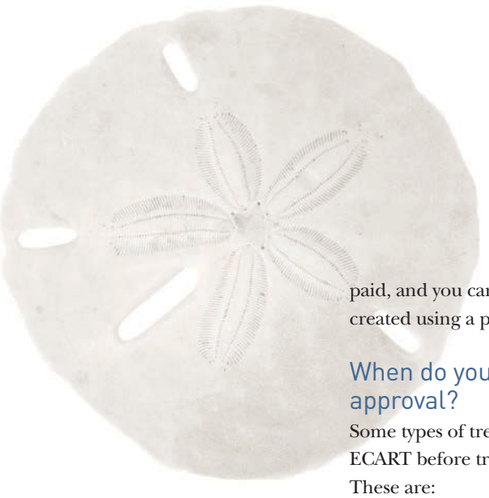
A second important aspect to the HART Act is that sperm, eggs or embryos can initially be stored for only 10 years. Extended storage requires an application to the Ethics Committee on Assisted Reproductive Technology (ECART).

This rule is especially important when donor sperm is used in IVF, because the 10 year period starts when the sperm is stored. For instance, suppose a donor banked sperm in 2005 and it was used in an IVF cycle in 2010 and spare embryos were frozen at the end of the IVF cycle. The 10 year limit for the frozen embryos is reached in 2015, because this is 10 years from when the sperm was frozen, not 10 years from when the embryos were frozen.

ECART likes to obtain the donor's permission when people want to extend storage of embryos created using donor sperm.

See our Fertility Fact sheet on extended storage.

The third important feature of the HART Act is that it is illegal to pay for, or give 'valuable consideration' for donation or surrogacy. Valuable consideration includes gifts or inducements.
This means that if you had donor treatment overseas, you cannot bring sperm or embryos back to New Zealand if the donor had been



paid, and you cannot bring back embryos created using a paid sperm or egg donor. .

When do you need ethics committee approval?

Some types of treatment need to be approved by ECART before treatment can start.
These are:

- Surrogacy
- Embryo donation
- Donor sperm and donor egg together
- Sperm or egg donation when the donor and recipient are family members but not brothers, sisters or cousins.

Generally ECART approval lasts for three years as long as you use the same donor and people's circumstances don't change. If you or any of the people who will be involved in treatment lives overseas, please seek advice from the clinic.

Our staff fill out detailed forms on your behalf when an ECART application is submitted.
If you want to see what is involved in an application, the forms can be found on the ECART website, www.ecart.health.govt.nz.

An ECART application often requires people to seek independent legal advice, so the cost of making an application can total several thousand dollars and can take several months to finalise.

Types of donors

We differentiate between two types of donors.

- **Personal donor** This is family member or a good friend.
- **Clinic donor** This is someone recruited by the clinic. Clinic sperm donors are generally recruited through general advertisements placed by the clinic. Clinic egg donors are often recruited by an advertisement placed by a specific woman or couple with responses going to the clinic for confidentiality - the women or couple who places the ad has the first option on potential donors recruited from that ad.

A clinic egg donor can donate in one of two ways:

- **One-To-One donor** All the eggs from the donor's cycle are used for one recipient.
- **Egg bank donor** The donor's eggs are frozen, and if there are enough they may be used for two recipients.

We have a Fertility Fact sheets on:
- Finding a sperm donor;
- Finding an egg donor.

Expectations of a personal donor

If you choose a personal donor, we will let the donor decide how fast he or she wants to progress through the various steps in their preparation as a donor. We can not divulge any medical information about the donor – you will need to ask the donor any questions yourself. However, we will tell you if your personal donor does not meet any of the standards for clinic donors. We are happy to pass information between donor and recipient, but we can only do this when the person providing the information agrees to the information being shared. We encourage personal donors and recipients to share information independently of the clinic.

A personal donor has the same rights as a clinic-recruited donor, including the right to withdraw consent at any time. Although you may recruit a person as your personal donor, he or she may also decide to donate to others – please discuss this with them to avoid any misunderstanding.

Personal donors from overseas

It is possible to recruit a sperm or egg donor from overseas, for instance a brother, sister or close friend. Sometimes some of the steps that are needed to prepare the donor can be done while he or she is in her home country. However, New Zealand rules still apply, including counselling by a suitably trained person who will cover the same issues to the same depth as if it were done in New Zealand.

An egg donor normally needs to be in New Zealand for the whole of the time of ovarian stimulation. Unless the donor is eligible for free healthcare in New Zealand, you will need to arrange health insurance for the donor to cover the unlikely event that she might need hospitalization as a consequence of treatment.

Going overseas for donor treatment or surrogacy

There are fewer egg donors in New Zealand than in countries where young women are paid to donate so some people think about having egg donation overseas. There are important issues you need to be aware of if you are thinking about going overseas for treatment:

- In New Zealand, women who use egg donors are strongly recommended to have only one embryo transferred at a time to reduce the risk of twins or triplets. Having twins or triplets significantly increases health risks to the mother and children. Many overseas clinics transfer more than one embryo. You should discuss the benefits and risks with your doctor at the overseas clinic.
- The HART Act makes sure that donor conceived people (and their parents) can access the identity of the donor when treatment occurs in New Zealand. You should ask what level of access you would have to your donor's identity should you become pregnant.
- If you use a paid donor overseas, you won't be able to bring any spare frozen embryos back to New Zealand.
- Pursuing surrogacy overseas is complex – if you are considering this option please discuss it with your Fertility Associates doctor, see a lawyer knowledgeable about international surrogacy, and read the Ministry of Social Development's website on surrogacy overseas.

We have a Fertility Fact sheet on overseas egg donation.

Personal donors overseas

Covid makes it difficult for people who would have previously flown a family member to New Zealand to be their donor, or who would have flown to donate to a family member overseas. We can import and export sperm, eggs and embryos in many circumstances. The requirements can be complex and shipping expensive, so we now have a dedicated shipping coordinator to help with enquiries and arrangements.

Investigating donors

The clinic screens donors for the more common diseases that can be sexually transmitted, takes a standardized medical history, and screens for inherited conditions common in the New Zealand population. We rely on the donor being honest and accurate about their family and medical history and social circumstances. We check the donor's identity against a driver's licence or passport.

- **Social information** All donors complete a non-identifying information questionnaire that covers ethnicity, physical features, education, personality, reason for donation and a lot more. As a recipient, you'll see this when you choose the donor.
- **Lifestyle** We encourage donors to make lifestyle changes that improve the chance of pregnancy for recipients, such as not smoking, moderate caffeine and alcohol use, for egg donors to take folic acid and not using alternative therapies for the duration of treatment. However, we don't police these recommendations and we can't tell you about the donor's lifestyle unless he or she agrees. Normally we wouldn't accept a donor if their lifestyle was likely to reduce the chance of pregnancy.
- **Medical & Family history** Our doctors take a structured medical history that is designed to identify possible inheritable conditions in the donor and his or her family. We are making the medical history of new donors available to recipients as part of the donor's profile when they choose a donor. We are unable to do this for earlier donors because we did not ask the donor's permission to do this.
- **Screening for genetic conditions** We recommend that donors and recipients use the Invitae test to screen for Cystic Fibrosis (CF), Spinal Muscular Atrophy (SMA) and Fragile X (FXS) plus around 300 less common recessive conditions. All of us carry some recessive conditions, so we expect at least 50% of donors to have at least one recessive gene identified. Although recipients can opt out of this test, we strongly recommend doing the test if the donor has any conditions identified. It saves time to do the test earlier rather than waiting for the results of the donor's test.
- **Risks associated with donor age** Because the chance of pregnancy falls with a woman's age and the chance of fetal abnormality increases with age, we have set an age limit of 20-37 for clinic recruited egg donors. We prefer women to have completed their family before becoming an egg donor. For men, sperm quality is not strongly related to age. The chance of a child having an abnormality increases slightly from 20 per 1000 men aged 20 to 26 per 100 for men aged 45. Our age range for clinic recruited sperm donors is 20-45.

Donors changingtheir minds

A donor can change his or her mind about donation until the sperm is used for insemination in IUI, until sperm and eggs come together in IVF, or until an embryo is transferred in Donor Embryo treatment. Occasionally people decide to withdraw from being a donor. This mostly affects donor sperm because of the time sperm is stored. For instance, a donor can withdraw while you have sperm reserved to try for a second child using the same donor.

• **Screening for sexually transmitted disease** We test for the following diseases that can be sexually transmitted – HIV, Hepatitis B and C, Chlamydia, Syphilis and Gonorrhea, sperm donors for HTLV1&2 and CMV, and women receiving donor sperm for CMV. We do the same tests for intending parents who are going to use surrogacy. We freeze the sperm or eggs, or the embryos created, and then retest the donor or intending parents three months later. The sperm eggs or embryos are released from the three month 'quarantine' when the second batch of tests come back negative. We do this because the tests for HIV and Hepatitis C don't measure the disease itself, but the body's reaction to the disease. It can take up to 3 months for the body to make antibodies to HIV and Hepatitis C. If the donor changes their sexual partner, then screening starts again.

• **Sperm & egg quality** We set minimum levels for sperm quality before accepting a clinic sperm donor and for an AMH level before accepting a clinic egg donor. This doesn't guarantee fertility, but these are the best measures available. If a personal donor doesn't' meet the criteria for a clinic donor, we will tell the recipient about any gaps.

• **Limitations to our information** We rely on the donor being honest and accurate about their identity, medical history, and social circumstances. It is also important to keep in mind that not all inherited diseases or conditions will be covered by our questionnaires, investigations or tests. In particular, CF, SMA FXS tests only cover the more common mutations of these genes. It is also possible, although very unlikely, that a screening test may give a false negative result.

Sharing information between donors & recipients

Sharing information falls into four areas – information before treatment, during treatment, after treatment, and after a child is born.

• **Before treatment** Recipients choose a clinic donor based on the donor's non-identifying information profile. Please consider the profile confidential and ask the same of anyone with whom you share it. Before treatment, we will tell a recipient any information that might affect their decision on whether to use the donor, such as any gap in their family history (eg. because the donor was adopted), any significant genetic conditions, or any deviation from Fertility Associates' usual criteria for accepting a donor. Some people want to meet their clinic donor before committing to using them in treatment. This is facilitated by our counsellors. It is common for donors and recipients to be introduced to each other by first name only at this stage.

• **During treatment** During treatment we will tell a recipient relevant information such as how an egg donor is responding to the IVF medications, or if the sperm quality of a donor is less than expected. Egg donors can ask about the number of embryos created and whether a pregnancy has occurred.

• **After treatment** In addition to the obligations of the HART Act, donors can ask about the number of pregnancies that have resulted from their donation, whether any children have been born, the children's gender, and whether sperm, eggs or embryos are still stored. The donor needs to ask us for after-treatment information; we do not send out updates for reasons of privacy.

• **Donor-recipient linking** If you use a clinic recruited donor, our counselling staff can act as a go between for photographs and letters between a donor and recipient. We can also facilitate a meeting between recipients, children and donors when all parties want to do this. Although we strongly encourage donors to tell the clinic when they change address, they don't always remember to do this, so we can't guarantee that we will be able to locate your donor.

Who pays for what?

The recipient pays a fee at treatment that covers the donor's medical and treatment costs, including doctor consultations, counselling, screening, and any banking and storing of sperm or eggs. Egg donors receive reimbursement for the various expenses associated with donation; this is paid by the recipient. If the donor needs an anaesthetist for her egg collection, airfares to the clinic or has other extra expenses, these will be additional to the standard reimbursement. Donors can waive the reimbursement if they want to, but this is the donor's decision. Reimbursement for out of town travel may be made with prior approval by the clinic.

Number of donor children

Fertility Associates is required to set a limit to the number of women who can have a child using a sperm donor or an egg donor. For many years this was set at 5 but has been increased to 7 for new donors. A donor can choose a lower limit if they wish. Most egg donors only donate to one or two women. A couple donating embryos can only donate to one couple or woman. Under these guidelines, the chance of a child unknowingly marrying one of their half siblings is very low. Nevertheless, it is a worry for some people, and this has encouraged them to arrange meetings between families using the same donor.

Getting prepared

As a recipient, there are some extra steps to IUI or IVF when using a donor. Most of these also apply to donors.

We have deliberately kept this section short but not because it is unimportant! There are some great books to help you get ready.Our pick is *Experiences of Donor Conception* by Caroline Lorbach, published by Jessica Kingsley.

• **Counselling** Counselling before donor treatment is mandatory for both donors and recipients. You will need to have at least one counselling consultation specifically about your donor treatment before you can start. If you have a partner, he or she will need to participate in counselling. This counselling is for support and to help you explore the implications of being a donor or using a donor to start a family. Some people choose to pay for additional counselling consultations to explore issues further. Although counsellors are part of the Fertility Associates team, their conversations with you and the notes they take are kept confidential from the rest of the staff. Your counsellor may ask if she or he can share some information if it may improve your care during treatment. They may also discuss issues with your doctor if they are concerned for your wellbeing or safety. The counsellor's record may also be accessed during an independent investigation.

• **Joint counselling** If you are using a personal donor, then there is also joint counselling of the donor and recipients together. Joint counselling also occurs for surrogacy and embryo donation.

• **Consent** Both donors and recipients need to give informed consent and sign a consent form with one of our clinical staff members. The consent form is where you record your decisions and directions about being a donor or receiving donated sperm, eggs or embryos. We can give you a copy of your signed consent form on request.

• **Whom to tell** We strongly recommend that you plan to tell your child about their being conceived using donor treatment or surrogacy. There are lots of studies which show that secrets can harm family relationships. Secrets have a nasty habit of coming out at the wrong time and in a traumatic way. Also, children have an uncanny way of knowing that there is something that they haven't been told. It is easiest to tell your child when they are very young. Although some people hope to keep their donation a secret, or want to keep the use of a donor to conceive a child a secret, the number of people using direct to consumer genetic testing, such as 24andMe, makes keeping this type of secret less and less likely.

There are several books with creative and sensitive ways of telling your child about his or her donor origins. Our counsellors will be very happy to share these with you, and some titles can be purchased through the clinic.

If you are a donor, we strongly recommend telling your own children about your being a donor. This issue will be discussed with you fully at your counselling appointment. You'll also need to think about whether, or when, to tell your family and friends. Although you may want to keep your treatment private, it helps to have the support of friends and family.

• **Stand down period** We have a policy of asking people receiving donor sperm, eggs or embryos to wait three months between finding that donor treatment is what they need or want and actually starting treatment. Using a donor is a big deal – the three month lead in gives you time to think through the issues and to get questions answered.

Did you know

Our counselling team has pulled together a recommended reading list. The list covers a wide variety of topics around fertility, infertility and treatments including donor and surrogacy. Take a look at our recommended reading list by visiting www.fertilityfacts.co.nz

Receiving donated sperm

This section provides you with specific information relating to the use of donor sperm in your treatment cycle.

Which parts of the magazine apply to using donor sperm

Nearly everything in the treatment part of this magazine is applicable to IUI or IVF using donor sperm. You will see this symbol when there is an important difference – which is mainly around not needing to provide a semen sample at the time of treatment.

IUI or IVF with donor sperm?

All clinic-recruited donors meet the World Health Organisation criteria for having 'normal' semen. However, some men's sperm survive freezing and thawing better than others, which means that only some donors are suitable for intrauterine insemination (IUI) while all are suitable for IVF.

If you choose an IVF-only donor, we usually use sperm microinjection (ICSI). We also recommend using ICSI if you are using a personal sperm donor with IVF based on analysing our own results.

If you do not become pregnant using IUI, then it is wise to move to IVF/ICSI. Our guidelines for using a donor on the next page reflects this approach. While IVF/ICSI is more expensive and more complicated than IUI, the pregnancy rate is higher because most people have more than one embryo, and higher quality embryos can be transferred first. The advantage of IVF/ICSI over IUI is even greater for women aged 40 or more.

Waiting for a donor

If you don't have a personal donor, you will join the waiting list for a clinic-recruited donor. We will tell you how long the wait is likely to be and will keep you updated. Because some donors may place restrictions and recipients often have preferences, our estimated waiting time is only approximate.

Choosing a donor

If you are using a Fertility Associates clinic donor, we'll show you the non-identifying information of the donors available – usually 3 to 5 donors. Once you choose a donor, we will reserve sperm for you. You don't own the sperm – it is reserved for you while you try for a pregnancy for a certain period of time.

Guidelines for using a clinic sperm donor

• **Publicly funded treatment** We aim to reserve enough sperm for two packages of treatment, based on up to 4 IUI cycles in the first package and one IVF cycle in the second package if you are not pregnant from the IUI. If the donor's sperm is only suitable for IVF/ICSI, then we will reserve enough sperm for two packages of IVF/ICSI. The reservation is available for up to 2 years – the Ministry of Health expects people to complete public treatment within 18 months of starting.

• **Privately funded treatment** The amount of sperm we reserve is designed to give a woman aged 37 or younger at least a 75-80% chance of having a baby. We offer two treatment pathways.

• **IUI then IVF/ICSI** We aim to reserve enough sperm for up to 3 IUI cycles and 2 IVF/ICSI cycles. The reservation lasts for 2 years. This path is only suitable for donors with IUI quality sperm.

• **IVF/ICSI** We aim to reserve enough sperm for up to 3 IVF/ICSI cycles. The reservation lasts for 2 years. This path is suitable for donors with IUI quality sperm and for donors with IVF/ICSI quality sperm. We strongly suggest the IVF/ICSI pathway for women 40 and older.

• **Starting treatment** You should start treatment within 3 months of reserving sperm. If you can't do this, we may cancel your reservation and offer the sperm to someone else who can start.

• **Reserving sperm for further children** Some people want more than one child. We are often able to reserve more sperm once you are pregnant so that you can later try for another child with the same donor. The reservation generally lasts until the HART expiry date for the sperm. Before you start treatment for a second time, you will need to see your doctor and a counsellor again, and sign a new consent form.

• **Partner reserving sperm** Sometimes same sex couples want the option of both partners having children using same donor. We can usually accommodate this by reserving sperm for the partner not having treatment, so long as the maximum number of recipients for the donor has not been reached.

When both partners have sperm reserved, we treat the two reservations as separate – each person has an agreement with the clinic, each is invoiced separately, and sperm cannot be transferred between the two people. We have taken this approach because of the complications that otherwise arise if partners separate or disagree on the use of their reserved sperm.

• **Paying for storage** For private treatment, storage fees start 6 months after reservation, for public treatment after 18 months. When sperm is reserved for a second child, storage fees start from the time of reservation. Storage fees are paid six-monthly in advance. If you stop paying storage for your reservation, the sperm reverts to Fertility Associates and may be allocated to other people

• **End of reservation** At the end of the 2-year reservation period, any remaining sperm reverts to Fertility Associates if you are not actively undergoing treatment or have not reserved it for further children. The sperm will be made available to other people who may need it. You may cancel your reservation at any time.

• **Limitations** While our donor programme is designed to give you the best chance of pregnancy, we are not liable for the loss, deterioration or unavailability of reserved sperm. A donor also has the right to withdraw permission to use his sperm at any time, even if you have reserved it. Like all frozen material, donor sperm cannot be used once it has been stored for more than 10 years unless the ethics committee gives the person holding the reservation an extension. We can help you apply for an extension, but we advise trying to complete treatment before an extension is needed.

Success a clinic with donor sperm

The success rate of IUI with donor sperm is shown on page 27. The success rate of IVF using donor sperm is very similar to that of couples having IVF using partner sperm, which is also shown on page 27.

If you don't have a personal donor you will join the waiting list for a clinic-recruited donor. We will tell you how long the wait is likely to be and will keep you updated.

Simple facts for same sex couples

- You can both reserve sperm from the same sperm donor, if available.
- If you want to provide an egg for your partner this is not classified as egg donation, therefore the preparation of egg donor' does not apply.
- If one person carries the embryo that has been created by the other person, this is not classified as surrogacy, therefore does not require an ECART application.

To keep up to date with the wait for donors check our website at Fertilityassociates.co.nz/donornews

Becoming an egg donor

Thank you for your interest in becoming an egg donor. This section provides you with specific information relating to your role in the IVF treatment cycle.

DONOR EGG treatment splits a traditional IVF cycle into two parts. The first part involves you as the donor with the stimulation of your ovaries, followed by the egg collection. The second part involves the recipient receiving your eggs.

Counselling and support

Although you are not the one experiencing infertility, many donors are drawn into the hopes and aspirations of the person they are donating to, even if they do not know her. Many donors are surprised by how disappointed they feel if their recipient does not become pregnant.

The medications you take to stimulate the ovaries and the travelling to and from the clinic can add to the stress. These issues make counselling and support especially important – you'll have counselling before starting treatment, but please feel free to contact the counsellors at other times if you feel the need. Your nurse is another great source of support and information, as you find out about being a donor and while going through treatment. As you go through your part of the IVF cycle, we will share how things are going with the recipient; for example results of blood tests and scans.

Contraceptive protection

Your FA doctor will discuss what to do about contraception during your donor cycle. Sometimes one or two eggs may be left behind after egg collection and it is important not to become pregnant accidentally.

Having a period

The medications you receive to stimulate your ovaries for egg collection will probably mean you have a slightly heavier than usual period, and it will probably come a bit earlier than normal – often 8-10 days after egg collection.

Review after donation

We will provide you with a written summary of your egg donation cycle. Some doctors prefer to do this as a letter to your GP with a copy to you; others prefer to provide you with a written summary after the egg collection. We strongly encourage you to make an appointment with your FA doctor to review how things went. It is up to you when you want to do this – we can make this appointment at the time of egg collection if that is helpful. You are also very welcome to follow up with one of our counsellors to discuss any issues that came up during your donation cycle.

Which parts of the magazine apply to being an egg donor?

Because egg donation involves the first half of an IVF cycle, large parts of this magazine apply to egg donors – we have listed relevant sections on the right. You may be interested in reading some of the other sections to appreciate what your recipient may be experiencing.

Magazine section	Page	
Finding information you want	7	Yes.
Our approach and values	8	Yes.
Your privacy	10	Yes.
Understanding fertility language	13	Yes, of most importance – definition of 'day 1' and 'follicles and eggs'.
Hormones and medications	15	Yes!
Fertility food	28	Yes, especially 'Tips for her', but not about Rubella.
The emotional roller coaster	34	Yes, because you may share some of these and it is good to be prepared.
Counselling and support	36	Yes.
Getting prepared	38	Yes, mainly the part about 'becoming fertility fit'.
IVF basics	64	Yes, for nearly everything until 'Decisions, decisions, decisions!' The section on risks applies to being an egg donor, apart from the pregnancy related risks.
Step by step through IVF	80	Yes, up to and including 'Egg collection' but not 'Paying for treatment'.

NOTE: Egg donors should also read page 115, which illustrates the pathway to becoming a donor.

Receiving donated eggs

Donor egg treatment splits a traditional IVF cycle into two parts. The first part involves your egg donor and the stimulation of her ovaries, followed by the egg collection. The second part involves you as the recipient of the donated eggs, adding sperm to eggs, embryo transfer and the subsequent pregnancy test.

Finding a donor

If you don't have a personal donor we recommend advertising. The clinic advises where to place an ad, what to say, and follows up the women who reply. You have the first option on potential donors recruited from your advertisement.

Egg donor wanted

We are a couple, both in our early 40s, who sadly haven't become pregnant after 3 cycles of IVF.

If you are a healthy, non smoking woman, 20–37, who has preferably completed your own family and would like to help us achieve our dream of having a family, we will be forever grateful.

Please contact in confidence Angela on 09 475 0310 or email fas@fertilityassociates.co.nz, quoting reference: Forever Grateful

Options for donor egg

The usual approach is for the donor to have her egg collection, to add sperm to the eggs, to freeze the embryos, and to quarantine the embryos for 3 months. The embryos are then thawed and transferred one at a time.

An alternative is to freeze and quarantine the eggs. The eggs are thawed and sperm is added. The embryos that result can be transferred fresh or they can be frozen for transfer later. Egg freezing has several advantages - the donor can donate anytime, she can donate before a recipient has been identified, her eggs may be used for two recipients, and recipients know in advance how many eggs are available. There is potential disadvantages - for a small number of donors, eggs do not freeze well.

When you use a clinic egg donor, we offer a partical refund if you do not have at least one good quality blastocyst to transfer. For a One-To-One clinic donor, you need to pay a fee to secure this protection, while for an egg bank donor it is built into the overall cost of treatment.

There are two ways of using frozen embryos - in a natural menstrual cycle or in a Programmed cycle. These are explained in the section on Frozen Embryos.

Success with donor eggs

The two factors that contribute most to the chance of success belong to your donor – her age and the number of mature eggs collected. The graphs in the section Success with IVF on pages 77-79 show the impact of age and AMH levels for fertility patients using their own eggs. These graphs include everyone having an egg collection, including women with few eggs. We have found success rates with egg donors are higher, closer to 60% for donors 30 and younger and to 50% for donors aged 30 to 37.

Even so, it is important to be realistic about the number of eggs your donor may produce, and that there may be no embryos suitable for use. Read the box called 'IVF numbers game' on page 64, which illustrates the attrition that typically occurs between egg collection and usable embryos.

Which parts of the magazine apply to receiving donated eggs?

Most of the magazine applies to donor egg treatment – we have listed the relevant sections in the table above. If you haven't had IVF treatment before using your own eggs, we suggest you read the sections about medications and egg collection to appreciate what your donor will be experiencing.

Using an egg bank donor

Many egg bank donors have enough eggs frozen for two recipients. We start by allocating 8 eggs to the first recipient since this number gives a high chance of having at least one good quality blastocyst to transfer. If the recipient does not get a high-quality embryo, we thaw more eggs. We do not use the that donor for another patient until the first recipient has at least one high-quality embryo. If none of the eggs give rise to a suitable embryo and fertilisation is normal, then we offer another donor or a refund.

→

Magazine section	Page	
Finding information you want	7	Yes
Our approach and values	8	Yes
Your privacy	10	Yes
Understanding fertility language	13	Yes
Hormones and medications	15	Yes
Age and lifestyle	26	Yes – although it is the donor's age that is most important
Fertility food	28	Yes
The emotional roller coaster	34	Yes
Counselling and support	36	Yes
Getting prepared	38	Yes
IVF basics	64	Yes. You'll need to be aware of the reasons that may lead to your donor stopping the cycle for under or over response to the medications. The risks associated with egg collection won't apply to you.
Success with IVF	77	Yes, but remember it's your donor's age that matters most, not yours.
Step-by-step through IVF	80	Yes, although you'll be taking medications to prepare the lining of the uterus rather than for stimulating the ovaries so you'll need few blood tests and scans. You obviously won't be having egg collection, but you will need to provide sperm at the right time on the day of egg collection unless you have sperm stored or are using donor sperm. You will already be on the hormone support needed to maintain the lining of the uterus.
Frozen embryos	86	Yes
After treatment	95	Yes

In addition to the sections listed in the table, there are a few instructions listed below which are specific to receiving donor eggs.

• **Starting treatment** When all the preparations have been completed, your nurse will work out a timetable and tell you when to contact the clinic.

Women sometimes have a little bleeding before their pregnancy test is due but this doesn't necessarily mean they are not pregnant. Don't stop any of the medications until we tell you to do so!

• **Keeping in touch** Unless you are using an egg bank donor, we need to keep in touch with you to tell you how things are going, and when egg collection is likely to be. We will share the donor's blood test and scan results with you.

- On the days we tell you, you can expect a Salve message or a call between 2pm and 4pm on weekdays unless you have arranged something different with your nurse.
- We strongly suggest you write down each instruction. Donor egg can be complex enough without having to remember instructions.
- We have found that when people call the clinic instead of us calling them, many calls get diverted to voice mail because staff are already speaking to other patients. We then need to listen to voice messages instead of answering new calls.
- Please phone the clinic if you have not heard from us by 4:30 pm.
- You must be able to be contacted by the clinic from the time you start.
- If you are not available between 2pm and 4:30pm, we need to know where we can leave a confidential message for you.

• **Providing a semen sample** You will need to provide a semen sample on the morning that your donor has her egg collection. Your nurse will provide details about the time. Please read the section on semen collection on page 84.

Recipient and donor pathway

Recipient Pathway

- Doctor consultation
- Contact by donor egg co-ordinator
- Preparation:
  - Complete non-identifying profile
  - Counselling (with partner)
- Choose your donor pathway

One-To-One or Personal

- Allocation (One-To-One only)
- Pre-treatment:
  - Joint counselling if both parties wish to meet
  - Decide treatment start date
  - Update blood tests and swabs
- Handover from donor co-ordinator to the nurses
- Embryology:
  - Sperm added to eggs
  - Embryos frozen
- 3 month quarantine period
- Recipient starts treatment

Egg bank

- Allocation
- Pre-treatment:
  - Joint counselling if both parties wish to meet
  - Nurse appointment
  - Update blood tests and swabs
- Handover to the lab team:
  - Embryology: Sperm added to eggs
  - Fresh or frozen embryo transfer

Donor Pathway

- Donor contacts the FA donor coordinator
- Registration & screening:
  - Blood test form
  - Registration form and health and lifestyle declaration
  - Donor reimbursement form
  - Non-identifying profile
- Initial test results
- Doctor consultation
- Counselling (with partner)
- Choose your donor pathway

One-To-One or Personal

- Tentative treatment dates arranged
- Joint counselling if required
- Handover from donor coordinators to the nurses
- Start treatment:
  - Day 1 call
  - Medication and monitoring
- Egg collection
- 3 month quarantine period
- Final blood test

Egg bank

- Tentative treatment dates arranged
- Start treatment:
  - Medication and monitoring
  - Ovarian stimulation
  - Egg collection & freeze
- 3 month quarantine period
- Final blood test
- Joint counselling if both parties wish to meet

The two factors that contribute most to your chances of success in having a baby with donated eggs are your donor's age and the number of eggs collected.

Donor embryos

Donor embryo treatment is quite simple technically because the embryo already exists. But socially there is a lot more complexity to it than other donor treatments.

What is embryo donation?

Some people have embryos from IVF treatment that are frozen to give them another opportunity to become pregnant later. Most people use all their frozen embryos, but some complete their family before all their frozen embryos have been used, and a few decide to stop treatment before using all their frozen embryos.

Embryo donation is when one couple decides to donate their remaining embryos to another couple or woman. If it is successful, there are usually full siblings (brothers or sisters) in two families – the recipients' family and the donors' family.

Key ethical issues

Most of the work associated with embryo donation involves preparation of donors and recipients for the key ethical issues associated with this treatment. They are:

- Minimising any potential harm to children involved.
- Children having information about their genetic origins and their siblings
- Ensuring everyone is fully informed about the psychological, social and ethical issues before they go ahead, so there are no regrets or surprises later.

Regulation of embryo donation

Embryo donation is one of the treatments that needs an application to ECART. ECART has set rules around who can consider embryo donation and who can receive the donated embryo.

Because of the ethical issues, embryo donation has some extra requirements beyond what is needed for sperm or egg donation. For instance, the donors and recipients have joint counselling where they meet each other, and children may need to be included in counselling in a way that is appropriate to their age. The recipients need to have a police check in the same way as before adoption. The donors will be able to see the Police check, although the recipients' names will be removed.

Like other types of donation, there is also screening for sexually transmissible diseases, and disclosure about the donors' health and the health of their children.

Embryo donation needs an application to ECART. ECART has set rules around who can consider embryo donation and who can receive the donated embryo.

You can look up the ECART guidelines for embryo donation at http://www.acart.health.govt.nz/moh.nsf/indexcm/acart-resources-guidelines-embryodonation.

Success with embryo donation

Because embryo donation uses frozen embryos, its success rate should be the same as people using their own frozen embryos. Your doctor can estimate your chance of a child from the number of embryos available, the age of the donor, and when the embryos were frozen, from tables drawn up by Fertility Associates.

Steps in embryo donation

Embryo donation is a complex and lengthy process which usually takes 6 to 9 months to complete. We have outlined the steps in the box on the right. If you are thinking about donating embryos, you'll need to pay for the initial counselling consultation. After that, the costs are covered by the potential recipient.

Which parts of the magazine apply to embryo donors?

Apart from tests, the medical consultation and counselling, there is no medical treatment for the donors. Donors pay for embryo storage until the consent form for embryo donation is signed.

Steps in embryo donation

- Enquiry about donating or receiving embryos.
- A counselling appointment for initial discussion.
- Recipients attend education and preparation sessions about raising a child who is not genetically related to them at Oranga Tamariki - Ministry of Children Adoption Services. These are held at regular intervals throughout the year.
- Recipients give consent to a Police check.
- Clinic applies to Ministry of Justice for a copy of the Police check.
- Donors and recipients complete a non-identifying profile and forward it to the counsellor.
- A second counselling appointment for further discussion of the issues involved, and to review the profile.
- Medical appointment for the donor couple with a Fertility Associates doctor to check medical history and complete infection screening.
- Medical appointment for the recipient to assess health and physical suitability for treatment.
- Coordination of donor and recipient requests.
- Profile of potential recipients is then shown to donors.
- If favourable, donors' profile is shown to recipients.
- If both parties agree, counselling appointment for a joint meeting is arranged.
- Consent forms are completed and signed.
- Counselling reports and medical reports are completed for the ECART application.
- Both donor and recipient seek independent legal advice for the ECART application.
- Application is sent to ECART to be considered at its next meeting. Applications must be received 3 weeks before the meeting date.
- ECART tells the clinic of its decisions 3-4 weeks after its meeting. Some non-identifying information about each application appears on ECART's website after the meeting.
- If requested by ECART, further issues may need to be addressed before application can be approved.
- Treatment may commence once the application is approved.

Which parts of the magazine apply to embryo recipients?

Magazine section	Page	
Finding information you want	7	Yes.
Our approach and values	8	Yes.
Your privacy	10	Yes.
Understanding the fertility language	13	Yes, of most importance – definition of 'day 1'.
Hormones and medications	15	Yes.
Age and lifestyle	26	Yes – although it is the donor's age that is most important.
Fertility food	28	Yes.
The emotional roller coaster	34	Yes.
Counselling and support	36	Yes.
Getting prepared	38	Yes.
IVF basics	80	The parts that relate to using frozen embryos – so the risks and side effects around pregnancy, and how many embryos to transfer.
Success with IVF	75	Yes, the section on using thawed embryos.
Step-by-step through IVF	80	Yes, planning ahead, day 1, paying for treatment, blood tests and scans, decisions, hormone support, embryos transfer, and waiting for the pregnancy test.
Frozen embryos	84	Yes – especially this section.
After treatment	90	Yes.

Embryo donation is a complex process that may take 6–9 months to complete.

Surrogacy

Surrogacy may be an option when a woman doesn't have a uterus (for instance after surgery) or has a medical condition that makes pregnancy unsafe. It is also an option for male couples and single men.

What does surrogacy involve?

Those needing surrogacy nearly always use IVF to create an embryo. In New Zealand these people are called the 'intending parents'. The embryo is then placed in the uterus of the surrogate. In New Zealand, the surrogate is often called the 'intending birth mother'. If pregnancy occurs, the surrogate carries and gives birth to the child. The intending parents then adopt the child.

Male couples

For male couples, IVF surrogacy requires an egg donor. We recommend choosing separate people to be the egg donor and the surrogate, as it can be easier emotionally for the surrogate to carry a child who is not genetically her own. You'll need to decide if sperm from one partner will be added to all the eggs, or whether you are going to divide the eggs between partners. When the eggs are divided, we run the embryology as two separate cycles to track parentage of the embryos for our own sample identification and for regulatory reporting. We will always be clear about which sperm had been used to create each embryo.

Key ethical issues

The key ethical issues are:

- Ensuring everyone is fully informed about the psychological, social and ethical issues before they go ahead, so there are no regrets or surprises later.
- The emotional risks of giving up a child for adoption.

Regulation of surrogacy

Surrogacy is one of the treatments that needs an application to ECART. Intending parents may have a medical condition that prevents pregnancy or safe pregnancy, have other types of infertility where treatment has been unsuccessful and a uterine factor is suspected, or be same sex male couples or single men.

When a child is born from surrogacy, the surrogate is the child's legal mother and her partner is also a legal parent. Because of this, preparation for surrogacy must include preparing for adoption with Oranga Tamariki - Ministry for Children. The usual rules for adoption apply, including a minimum 10-day period between birth and adoption. Key aspects of legislation are listed in the box on page 121.

- You can look up the ECART guidelines for surrogacy at https://acart.health.govt.nz/publications-and-resources/advice-to-the-minister-of-health/acart-advice-and-guidelines-for-gamete-and-embryo-donation-and-surrogacy/
- The Child Youth and Family website has information on adoption and surrogacy – https://www.orangatamariki.govt.nz/adoption/surrogacy/

Because of the ethical issues, surrogacy has some extra requirements. For instance, there is joint counselling of the two family groups, and children may need to be included in counselling in a way that is appropriate to their age.

Counselling covers:

- The possibility of a breakdown in the arrangement, such as the birth mother wishing to keep the child, or the intending parents not wishing to adopt the child.
- The possibility of a multiple birth, and positions of both parties.

- The risk of rejection of a child born with a disability or abnormality that was not diagnosed during pregnancy.
- The possibility of legal termination of a pregnancy if a child is diagnosed before birth with a disability or abnormality.
- The possibility of termination of pregnancy for the health of the surrogate.
- The possibility of the birth mother deciding against a termination in the above situation and subsequent care of the child.
- The amount of influence that intending parents have over the birth mother's lifestyle during her pregnancy.
- The availability of a permanent, accurate record of conception and gestation for the child.

Typical timeline for an ECART application for surrogacy. This often takes six months or more.

Step 1	Appointment with doctor – Intending parents.
2	Appointment with different doctor – Intending birth mother.
3	Intending parents begin discussion with Oranga Tamariki - Ministry of Children regarding adoption/ guardianship process if not already started.
4	Medical reports and any relevant test/additional medical reports completed by Fertility Associates doctors and other specialists required.
5	First counselling session – Intending parents.
6	First counselling session with a different counsellor – Intending birth mother and partner.
7	Second counselling session – Intending parents.
8	Second counselling session with a different counsellor – Intending birth mother and partner.
9	Draft reports completed and sent to parties by the counsellor. Joint counselling session for both parties with both counsellors. Draft report for joint session completed and sent to parties.
10	Counselling session for any significant others.
11	All counselling reports completed.
12	Lawyer appointment for intending parents.
13	Different lawyer appointment for birth mother and partner.
14	Legal reports received at Fertility Associates.
15	Application compiled and completed by Fertility Associates.
16	Application couriered to ECART when all reports and documents received.

Success with surrogacy

Surrogacy should have the same chance of birth as IVF itself. Birth rates from IVF are shown on page 77.

We encourage surrogates to make lifestyle changes to improve the chance of ongoing pregnancy – such as not smoking, being careful with caffeine and alcohol, not using alternative therapies for the duration of treatment and reducing weight if overweight. However, we do not police these recommendations and we can't tell you about the surrogate's lifestyle unless she agrees. We would ask for an independent physician's assessment of a surrogate if there were concerns about her health such as being sufficiently overweight to create a risk to her or the baby during the pregnancy. The ethics committee also asks for a medical report.

Steps in surrogacy

Surrogacy is a complex and lengthy process. We have outlined the minimum time to prepare an ECART application in the box on the left. The minimum time between ECART approval and embryo transfer to the surrogate depends on how the sperm, eggs or embryos have been, or will be quarantined. If both sperm and eggs have already been frozen and had 3 months quarantine, then they can be used to create embryos and the embryos can be used at any time. If egg collection is planned after ECART approval, then there will be a 3 month quarantine period between egg collection and embryos being available for transfer.

Being a surrogate

Preparation for being a surrogate includes medical consultation, counselling, legal advice, and learning about the what is involved in an embryo transfer cycle (see the box at the bottom of page 121). Although you may have already borne a child, pregnancies can differ, and there is the possibility that your surrogacy pregnancy could be more difficult or have medical complications you haven't had before. You should discuss this possibility with your Fertility Associates doctor. Under the law at present, there are limits to the level of material support intending parents can offer a surrogate, so you'll need to think about the costs of being pregnant, including possible time off work.

What the law says

The HART Act, 2004, states:

- Surrogacy is not illegal but is not enforceable by or against any person.
- Payment or giving 'valuable consideration' for participation or arranging surrogacy is prohibited.
- It is illegal to advertise for someone to take part in surrogacy.

The Status of Children Amendment Act, 2004, states:

- A child is considered to be the legal child of the woman who gives birth to that child no matter who provided the eggs or sperm. The birth mother is also the child's guardian.
- That if a woman giving birth is married, her partner is a legal parent and the child's guardian if he consents to the procedure.

Adoption Act, 1955, (Section 25), states:

- It is unlawful to give or receive any payment in consideration of a proposed adoption of a child.
- No consent to adoption may be signed before a child has reached ten full days old.
- No child may be in the care of persons for the purpose of adoption unless:
  - Prior approval has been given by a social worker (from the Child, Youth and Family Service).
  - An interim order in respect of the proposed adoption is for the time being in force.
  - The caregivers are close relatives (as defined by the Act) of the child's birth mother.

Which parts of the magazine apply to intending parents?

All sections apply apart from the paragraphs on embryo transfer in 'IVF basics'.

Which parts of the magazine apply to the surrogate mother?

Magazine section	Page	
Finding information you want	7	Yes
Our approach and values	8	Yes
Your privacy	10	Yes
Understanding fertility language	13	Yes, mainly the definition of 'day 1'.
Hormones and medications	15	Yes
Age and lifestyle	26	Lifestyle, but not age.
Fertility food	28	Yes
The emotional roller coaster	34	Yes
Counselling and support	36	Yes
Getting prepared	38	Yes, mostly –but not the parts about men or payment.
IVF basics	64	Yes, the sections covering embryo transfer and pregnancy associated risks, including how many embryos to transfer. You'll need to be aware of the reasons that may lead to the intending parents stopping the cycle for under or over response to the medications.
Success with IVF	75	Yes, but remember it is the age of the woman providing the eggs that matters most.
Step-by-step through IVF	80	Yes, although you'll be taking medications to prepare the lining of the uterus rather than for stimulating the ovaries so you'll need fewer blood tests and scans. You'll already be on the hormone support needed to maintain the lining of the uterus.
Frozen embryos	84	Yes, if the intending parents have any spare embryos frozen.
After treatment	90	Yes

Publicly funded fertility treatment

Publicly funded fertility treatment covers almost all types of treatments. Eligibility is based on the ability to benefit and is calculated using a scoring system.

THE LEVEL of public funding of fertility treatment varies around the world; New Zealand falls in the middle of the range. Like all 'elective' health services in New Zealand, eligibility is calculated by a system which gives you a score out of a 100. If you gain 65 points or more you are eligible for publicly funded fertility treatment. Many people don't score 65 points when they first see their fertility specialist but gain points with time, since duration of infertility is an important predictor of the chance of having a child for many types of infertility.

Your fertility specialist will calculate your score and offer you the opportunity to enrol for publicly funded treatment if you are eligible.

The scoring system takes into account your chance of pregnancy without treatment, your chance of pregnancy with treatment, ovarian reserve, how long you have been trying to get pregnant, whether you have children living at home, and whether you have had a tubal ligation or vasectomy. The woman has to be 39 years old or under, a non-smoker and with a BMI in the range of 18-32.

To be eligible, both partners need to be New Zealand residents or meet other residency requirements to access public health services. We need to see some evidence of residency, such as a birth certificate or passport before you can be enrolled for public treatment.

There is more information on how the points are allocated, and some examples on our website, under Paying for treatment, Public funding and Eligibility.

Nearly all types of treatment are covered by public funding. Sometimes you have a choice of treatments but usually it is decided by the characteristics of your infertility. For instance, if your ovarian reserve is very low, you will be offered donor egg treatment instead of IVF using your own eggs since donor eggs gives you a better chance of pregnancy.

Public funding covers up to 'two packages of treatment'. One package consists of:

- One cycle of IVF-type treatment (including ICSI, donor egg, or surrogacy if needed) OR
- Four cycles of IUI treatment using partner or donor sperm, or ovulation induction (OI) using FSH medications.

If treatment results in a child and you have frozen embryos remaining, you may be able to have these embryos transferred under public funding too – ask your nurse or doctor about the current rules.

A cycle is considered complete if there is an embryo to transfer in IVF or insemination takes place in IUI. If the treatment cycle is stopped before this stage, we may offer a second attempt as part of the same package. For PGT, a cycle is considered complete if there is an embryo suitable for testing.

If you do not become pregnant from your first package, you may be eligible for a second package of treatment. You will still need to score 65 points or more and meet the usual criteria when your fertility specialist re-scores you after completing your first package.

If you have a child from private treatment or have conceived naturally while waiting for your publicly funded treatment, your score will change. If you want to try for another child later, you will need to see your fertility specialist again to re-assess your eligibility for publicly funded treatment. You will get fewer points if you already have a child, but some people in this situation still score more than 65 points.

The wait for public treatment once you are enrolled presently ranges from 12–15 months. We will write to confirm your enrolment and tell you when treatment is likely to be offered. If you change address you must tell us. We will contact you 2–3 months before IVF treatment is scheduled to get things started. You need to be in New Zealand for preparation and treatment which could last up to 2–3 months, and longer if you are using donor eggs, donor embryos or surrogacy. If you are not going to be available for any reason, please tell us as soon as possible so we can treat someone else instead. We will try to re-schedule your treatment if you need to delay it for an important reason, but if you postpone it a second time you will need to be re-enrolled, which means starting the wait all over again. If you change partners, scoring and enrolment also start all over again.

You must still meet all the eligibility criteria when treatment begins, including not smoking and your BMI being in the 18-32 range. Even if you meet all the criteria, public treatment can be withdrawn if it is unlikely to be successful, for instance if you do not respond well to the IVF medications.

Unlike in many other countries, public treatment is totally free – there is no partial payment. However, you do need to pay for your own legal expenses if you are using surrogacy or donor embryo and for any ethics application associated with your treatment. If you complete an IVF cycle and have spare embryos frozen, you'll need to pay storage fees after the first 18 months.

Travel assistance may be available under some circumstances – the Ministry of Health website has information on what is available.

While the provision of public treatment is usually straightforward, we have guidelines for the various scenarios that occasionally arise. Please feel free to contact us if you have any questions.

For private treatment fees please visit our website www.fertilityassociates.co.nz

Here you will find stories our patients have chosen to share with you about their experiences with fertility treatment, the impact on their lives and the different ways they coped with treatment. These stories are written by them and are unedited – they are in their own words...

IN MY OWN WORDS

I wanted to be a mum

"Meeting the person that was generous enough to give me the opportunity to be a mum was an enormous honour."

IT HAS BEEN an emotional journey to get this far. I had decided sometime ago that I wanted to be a mum, this was despite not having a partner, so set about exploring the options. The process was clinical. I met the specialist, underwent some tests, met with a counsellor and put my name down on the waiting list, hoping that at some stage in the future my name would come up and I would move to the next stage in the process.

My time came some six months ago, and I was asked to go into the clinic and decide on the donor. It was another surreal experience, where I was put in a room with four profiles of donors. The listing includes details such as age at the time of donation, height, weight, eye colour etc along with some other facts like education, relationship status etc. From these profiles I had to pick my "match". To me, it was somewhat easy as I wanted someone who was interested in being part of any potential child's life – that gave me two options, and then following another read through the profiles I picked my one.

I vaguely remember reading something about the donor wanting to meet prior to any treatment but didn't really consider what that meant until some two months later when I rang the clinic to say that I wanted to start my IVF treatment. After speaking with the nurses and setting up various appointment times, I was rung back and told that I would need to meet the donor prior to starting the process. I then had to set up a time with the counsellor and during the session would be introduced to the generous person who was allowing me the opportunity to be a mum.

It is fair to say that I was very nervous – what would the donor think of me and my choice to become a single mum and what if neither of us liked one another? I initially met with the counsellor, and she helped settle my nerves somewhat; asking me what sort of things I would want to know and was I happy to answer any questions that the donor and his wife had.

Finally, she left me sitting in her room while going out to meet the donor and his wife. The first thing that the donor said when he walked in was "are you nervous?" – "so are we". It was nice to know that we were both having similar feelings. The first few conversations were a bit stilted, managed largely by our counsellor asking questions of us all but pretty soon it was much more comfortable and all three of us talked openly about why we were doing what we were; about our families and anything that came up. It was a wonderful experience, albeit somewhat weird, and we parted quick friends with both the donor and his wife wishing me all the best and hugging goodbye.

I now had a much better idea of the person that was potentially going to be my baby's biological father – he was no longer just words and statistics on a piece of paper, and better still I knew that both he and his wife would be open to being part of the baby's life should this be something that they wanted to explore at some stage.

I had up until that stage continually questioned if what I was doing was really right and if I really could have a baby whose father was just statistics and a first name – how would I explain that in later life?

I know that meeting a donor is not a common occurrence and for some people the fact that the person's details are anonymous, unless the child wanted to know, is right for them. I was not one of those people. Meeting the person that was generous enough to give me the opportunity to be a mum was an enormous honour and made the whole 'scientific' procedure a lot more human. It is something that I would recommend to others to do, given the opportunity.

First published in Parents Inc – www.parentsinc.org.nz

Our Pathway...

INDEX

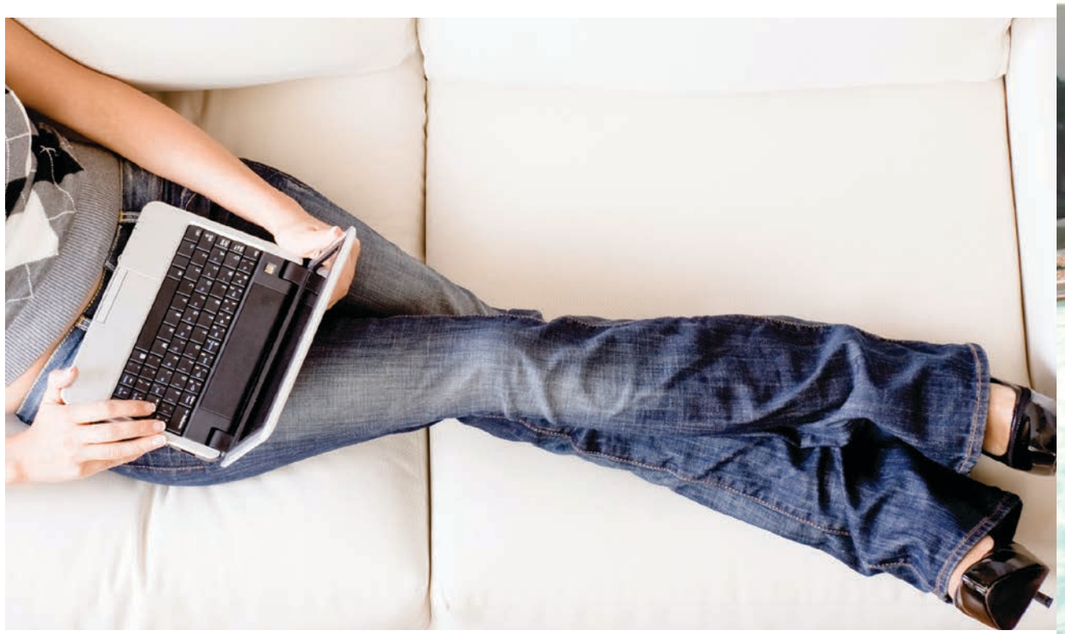
You may want to write important dates and instructions from your treatment plan and nurse's telephone calls here.

Your treatment diary

Date	Instructions	Notes

Notes

Notes



Fact sheets

We have over 30 in-depth information sheets on our website or underway which we call Fertility Facts. If you can't use the web, our staff are happy to print a copy of what you are interested in. You can find these at fertilityassociates.co.nz/fertilityfacts or by searching fertility facts from the home page.

- A guide to in vitro maturation (IVM)
- About the HART Act
- Adjuvant therapy in IVF
- Amniocentesis and CVS
- AOA - Artificial Oocyte Activation
- Avoiding twins – single embryo transfer (SET)
- Embryology
- Ending embryo storage
- Extended storage
- Fees and payment
- Freezing embryos
- Glossary of terms and drugs
- hCG infusion before embryo transfer
- High magnification ICSI (IMSI) & PICSI
- HIV testing and treatment
- Intracytoplasmic sperm injection (ICSI) and surgical sperm retrieval (SSR)
- IVF children
- IVM In Vitro Maturation
- Male infertility and semen tests
- Ovarian reserve and AMH
- Ovarian stimulation for IVF
- PreimplantationGeneticTestingforAneuploidies-PGT-A
- Timelapse Morphometry Imaging 'TiMI'
- Ureaplasma and Azithromycin for IVF
- Vasectomy reversal

In addition, we have information on many other subjects – please ask one of our staff to help you with any supporting information.

Reading list: See our website www.fertilityfacts.co.nz for a comprehensive list of books selected by our counsellors on all aspects of infertility and its treatment.

For more information and latest treatment options please visit www.fertilityassociates.co.nz

With you on your fertility journey

We decided to give our local support group a go and it was one of the best choices we have made. Your emotions and experiences are welcomed without judgement and heard with love and support. For the first time since our journey started, we feel supported in a way we haven't felt before. Thanks FNZ for providing a safe and supportive place for us to experience infertility together. – *Hannah and Manu*

Fertility New Zealand walks alongside all people facing fertility challenges. Much of its work is undertaken by volunteers around the country. Fertility New Zealand was founded in 1990 and is a registered charity.

INFORMATION

- www.fertilitynz.org.nz
- 0800 line and support email address for enquiries
- Virtual and in-person information events
- Informative fact sheet brochures on over 20 subjects (also available in clinics)
- Fertility Week campaign
- *Dandelion* newsletter with members' stories and news

SUPPORT

- Network of regular support gatherings and workshops through-out the country
- Forums on our website where members can support one another

ADVOCACY

- Representing the voice of people affected by fertility challenges on medical, ethical and policy issues

Join Fertility NZ today to receive email updates of our news and events. www.fertilitynz.org.nz/register

0800 333 306 | support@fertilitynz.org.nz

Fertility NZ is a registered charity and donations are gratefully accepted.
Facebook.com/fertilitynewzealand

fertility
NEW ZEALAND

Contact us: www.fertilityassociates.co.nz • Phone 0800 10 28 28

• **Auckland** Level 3, 7 Ellerslie Racecourse Drive, Remuera	P 09 520 9520	E faa@fertilityassociates.co.nz
• **North Shore** Level 1, 119 Apollo Drive, Albany	P 09 475 0310	E fas@fertilityassociates.co.nz
• **Hamilton** Level 2, 62 Tristram Street, Hamilton	P 07 839 2603	E fah@fertilityassociates.co.nz
• **Wellington** Radio NZ House, Level 11, 155 The Terrace	P 04 384 8401	E faw@fertilityassociates.co.nz
• **Christchurch** Level 1, Hiatt Chambers, 249 Papanui Road	P 03 375 4000	E fac@fertilityassociates.co.nz
• **Dunedin** Level 4, Burns House, 10 George Street	P 03 955 4546	E fad@fertilityassociates.co.nz