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## Assisted reproductive technology – IVF and ICSI

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### Summary

- IVF (in-vitro-fertilisation) and ICSI (intracytoplasmic sperm injection) are assisted reproductive treatment (ART) procedures in which eggs are fertilised outside the body.
  - IVF and ICSI involve a series of steps taken over several weeks.
  - Your personal circumstances and medical history may affect your chance of having a baby with IVF or ICSI.
  - When handled by experts, IVF and ICSI are safe, and medical complications are rare.
  - In Australia, Medicare covers some of the costs associated with IVF and ICSI (as does private health insurance) but there are also substantial out-of-pocket costs.
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### IVF and ICSI

The information on this page is a general overview of two types of assisted reproductive treatment (ART) – in-vitro fertilisation (IVF) and intracytoplasmic sperm injection (ICSI). More detailed information is available on the **Victorian Assisted Reproductive Treatment Authority (VARTA)** website.

### What IVF and ICSI involve

IVF and ICSI are forms of assisted reproductive treatment (ART) in which eggs are fertilised with sperm outside the body. IVF is used for female infertility and unexplained infertility, and ICSI is used when there is a male cause of infertility.

Sometimes ICSI is offered when there is no male cause of infertility, but research shows that this does not increase the chance of having a baby.

The steps involved in IVF and ICSI treatment are:

1. **hormone stimulation** – the woman's ovaries are stimulated with a course of injectable fertility drugs
2. **egg retrieval** – when the eggs are mature, they are retrieved while the woman is under light anaesthetic
3. **embryo development** – when using IVF, sperm from the male partner or a donor are added to the eggs to allow them to be fertilised. When using ICSI, the scientist picks up a single sperm and injects it into each egg using a microscopic needle. The eggs and sperm are then kept in the laboratory for 2 to 5 days (depending on clinic practice) for embryos to develop
4. **embryo transfer** – if the eggs fertilise and embryos develop, one embryo (or sometimes two) is placed in the woman's uterus. (Sometimes several embryos develop, and they can be frozen for use in later embryo transfer procedures.)
5. **test for clinical pregnancy** – two weeks after the embryo transfer the woman has a blood test to see if the treatment has been successful:
  - If the test is positive, an ultrasound examination is scheduled 2 weeks later to check that the pregnancy is developing normally. (Note: A clinical pregnancy does not guarantee the birth of a baby, as miscarriages can occur.)
  - If the test is negative the woman will have a period and will then need to decide whether to try again. If she has frozen embryos these can be replaced one by one without the need to stimulate the ovaries
6. **live baby** – the birth of a living baby or babies (multiple births are classed as a single live birth).

### Understanding IVF and ICSI success rates

Clinics report **success rates** in different ways. When comparing clinics' success rates for IVF and ICSI make sure you compare like with like, or 'apples with apples'. And, most importantly, you need to consider your own personal

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circumstances and medical history when you estimate your chance of having a baby with IVF or ICSI.

### **Possible health effects of IVF and ICSI**

In the hands of experts, IVF and ICSI are safe procedures and medical complications are rare. But, as with all medical procedures, there are some possible health effects to consider for women and men undergoing treatment and for children born as a result of treatment.

#### **Risks associated with IVF and ICSI include:**

- an excessive response to fertility drugs (**ovarian hyperstimulation syndrome, OHSS**)
- multiple birth (twins and triplets)
- premature labour and low birth weight
- a small increased risk of birth defects compared with spontaneously-conceived babies
- caesarean delivery.

IVF and ICSI are also psychologically demanding and **emotional health effects** are common. In Australia, counselling services are available in all fertility clinics. Women who have IVF treatment, and their partners, are encouraged to use these if they experience emotional difficulties.

### **Cost of IVF and ICSI**

In Australia, Medicare (and private health insurance) covers some of the **costs associated with IVF** and ICSI but there are also substantial out-of-pocket costs.

The difference between the Medicare benefit and the amount charged by the clinic is the 'out-of-pocket cost'. These costs vary, depending on the treatment, the clinic and whether a patient has reached the **Medicare Safety Net threshold**.

### **Deciding what to do with unused embryos**

Sometimes people have embryos in storage that they don't intend to use. Most commonly this is because they have completed their family, but for some people, health reasons prevent them from using their stored embryos. At the end of the storage time limit, which in Victoria is 5 years, people need to decide what to do with unused embryos.

There are 4 options available:

1. apply for an extension of storage time
2. dispose of the embryos
3. let the embryos be used for research
4. donate the embryos to another infertile person or couple.

Couples who have frozen embryos that they are not intending to use often find it difficult to decide what to do with them. Victorian Assisted Reproductive Treatment Authority (VARTA) has an **interactive decision-making tool** designed to help people who find it hard to decide what to do with their unused embryos.

### **Where to get help**

- Your GP (doctor)
- Obstetrician or gynaecologist
- Fertility specialist
- IVF clinic.

**This page has been produced in consultation with and approved by:**

Victorian Assisted Reproductive Treatment Authority

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