Plain language summary

In Vitro Fertilisation (IVF) and Intracytoplasmic Sperm Injection (ICSI)

Who is this summary for?

This summary is relevant to all people undergoing IVF or ICSI treatment for infertility in Ireland.

What is this summary about?

The National Women and Infants Health Programme (NWIHP) recently developed the National Clinical Practice Guideline (CPG) on In Vitro Fertilisation and Intracytoplasmic Sperm Injection. This Guideline is for healthcare professionals who care for individuals experiencing subfertility and provide IVF/ICSI treatment. The purpose of this plain language summary (PLS), using non-medical terminology, is to provide an overview of the national Guideline.

Why would IVF/ICSI treatment be recommended?

IVF/ICSI treatment are forms of assisted human reproduction (AHR) treatments provided by fertility clinics. IVF/ICSI may be recommended as treatment options for people experiencing subfertility, defined as a disease where there is failure to conceive a pregnancy within 12 months of regular, unprotected sexual intercourse or due to the inability to have a baby, either as an individual or with a partner.

What is IVF?

IVF is a fertility treatment where sperm and eggs are collected and carefully combined in a laboratory. Some of the eggs will be fertilised by the sperm and over about 3-5 days will form embryos. An embryo will then be placed in the woman's uterus where it will hopefully implant and lead to a pregnancy.

What are the steps involved in an IVF cycle?

There are many steps in an IVF cycle.

1. Stimulation of the ovaries to encourage development and maturation of the eggs

The woman is given fertility medicines to stimulate her ovaries to produce multiple eggs (oocytes). The eggs grow in follicles which are small fluid-filled sacs. The number and size of the developing follicles is measured by ultrasound scans (usually transvaginal). The final preparation of the eggs involves a hormone injection which helps the eggs to mature.

https://www.hse.ie/eng/about/who/acute-hospitals-division/woman-infants/clinical-guidelines/

https://www.rcpi.ie/faculties/obstetricians-and-gynaecologists/national-clinical-guidelines-in-obstetrics-and-gynaecology/

2. Retrieval of the Eggs

Once the follicles are an appropriate size, the eggs are removed via a procedure called egg collection or oocyte retrieval. This is a minor procedure which is carried out in the fertility clinic under light sedation. A transvaginal ultrasound probe is used to visualise the ovaries and a needle attached to the probe is passed through the vagina into the follicles. The fluid within each follicle is removed and then examined in the IVF laboratory to check if there's an egg. If eggs are found, they are washed and transferred into special dishes in an incubator

3. Collection of sperm

On the day of egg collection, the man is required to provide a sperm sample. In some cases, previously frozen sperm is used. The sperm is prepared in the IVF laboratory to select the best sperm. Several hundred thousand sperm are then placed around each egg in the laboratory.

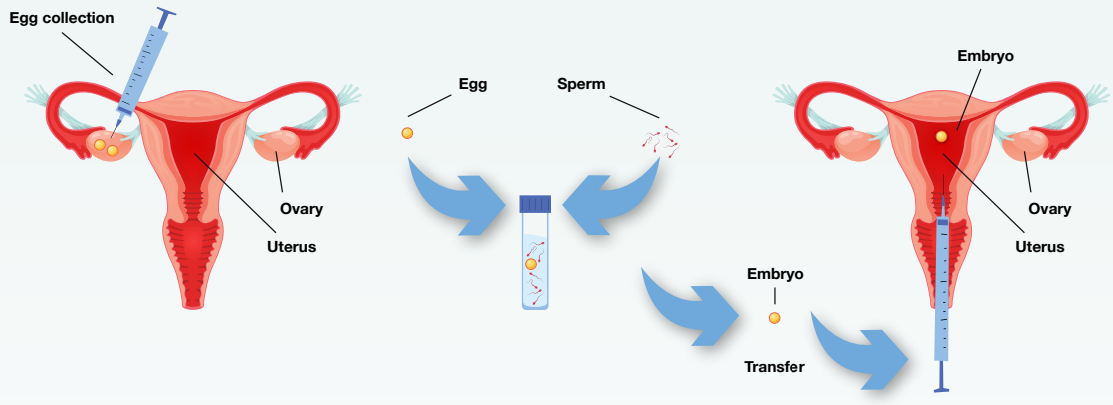
4. Fertilisation of the eggs and culture of the embryos

24 hours after the eggs and sperm have been placed together, the laboratory team will be able to see how many of the eggs have been fertilised. These fertilised eggs are then grown and monitored in the IVF laboratory for 3-5 days. At this stage they are called embryos, and after 5 days they are called blastocysts.

5. Embryo Transfer

Embryo transfer is the final stage of an IVF cycle. An embryo is selected and placed into the uterus by a fine catheter inserted through the cervix. The correct positioning of the embryo is usually confirmed by an ultrasound scan. The embryo transfer procedure involves an examination similar to having a cervical screening test but it takes longer because great care has to be taken of the embryos. This procedure does not usually require sedation. When the embryo is transferred back into the uterus at the end of an IVF cycle, this is referred to as a fresh embryo transfer. Any embryos remaining that are not transferred and that are of suitable quality can be frozen and used in future, so-called, frozen embryo transfer cycles.

Steps involved in an IVF cycle



Taken from: https://www.hse.ie/eng/about/who/acute-hospitals-division/woman-infants/national-fertility-services/assisted-human-reproduction-services-information-booklet.pdf

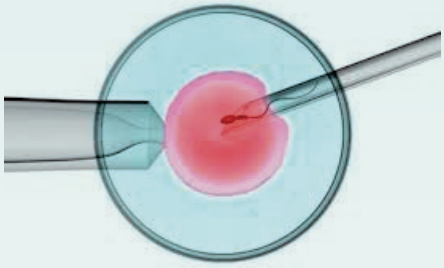
https://www.hse.ie/eng/about/who/acute-hospitals-division/woman-infants/clinical-guidelines/

https://www.rcpi.ie/faculties/obstetricians-and-gynaecologists/national-clinical-guidelines-in-obstetrics-and-gynaecology/

What is ICSI?

ICSI is a type of IVF. The procedures of stimulating the ovaries, egg collection, culturing embryos and embryo transfer are the same as in IVF. However, the way the eggs are fertilised in the laboratory is different. In standard IVF, the eggs are placed in a dish with thousands of sperm and one sperm fertilises the egg. With ICSI, a single sperm is chosen and injected directly into the centre of the egg. The procedure bypasses the natural process of the sperm getting into to the egg on its own. ICSI is recommended for certain types of fertility problems, mainly male-related clinical indications including low sperm count, sperm with abnormal shape or sperm with poor swimming ability. ICSI allows the use of sperm that may not otherwise have been able to fertilise an egg.

Procedure where a single sperm is injected directly into the centre of the egg



Are there any risks associated with IVF/ICSI?

IVF/ICSI treatments are generally considered to be very safe, however there are some potential risks and complications which may occur.

These include:

- Multiple pregnancy
- Ovarian hyperstimulation syndrome (an exaggerated response of the ovaries due to the presence of excess hormones)
- Ectopic pregnancy (when a fertilised egg implants in the wrong place)
- Side-effects of the medication
- Pelvic infection
- Possible increased risk of birth defects (these are rare, and research is still ongoing)
- Increased stress and anxiety

https://www.hse.ie/eng/about/who/acute-hospitals-division/woman-infants/clinical-guidelines/

https://www.rcpi.ie/faculties/obstetricians-and-gynaecologists/national-clinical-guidelines-in-obstetrics-and-gynaecology/

Where to go for more information?

National Infertility Support & Information Group (NISIG). **www.nisig.com**

https://www.hse.ie/eng/about/who/acute-hospitals-division/woman-infants/clinical-guidelines/ncpg-fertility-investigation-pls.pdf

https://www.hse.ie/eng/about/who/acute-hospitals-division/woman-infants/national-fertility-services/assisted-human-reproduction-services-information-booklet.pdf

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