VARTA
Victorian Assisted Reproductive Treatment Authority

Understanding IVF success rates

When considering clinic success rates, you need to make sure you compare like with like, or ‘apples with apples’. And, most importantly, your own personal circumstances and medical history must be taken into account when you estimate your chance of having a baby with IVF.

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The purpose of this document

VARTA provides independent information and support for individuals, couples, and health professionals on fertility, infertility, assisted reproductive treatment (ART) and the best interests of children born from ART.

This brochure will give you an overview of how to interpret clinics' success rate figures, factors that influence the chance of success, and important questions to ask your doctor.

The information in this brochure should not be seen as a substitute for advice from doctors and other health professionals. If you have questions that are not addressed here, please raise them with your doctor.

Understanding IVF clinics' success rate figures

IVF treatment involves several steps, as shown in the diagram below. While many healthy children have been born through IVF, there is a risk that things might go wrong in each of these steps. For example, a woman might not respond to the fertility drugs; eggs may not be recovered; and embryos may not develop or implant. Even if the embryo does implant and a pregnancy is established, there is still a risk of miscarriage.

The diagram shows some of the ways success is reported. When you see success rate figures, it is important to know how 'success' is defined - whether 'success' means a positive pregnancy test or the birth of a baby, and what part of the process is included or excluded.

One clinic can look much more successful than another because of the way 'success' is measured. For example, if 100 women start a treatment cycle, 75 have an embryo transfer, 25 have a clinical pregnancy and 20 give birth, the 'pregnancy per embryo transfer' figure is 33 per cent and the 'live birth per started treatment cycle' figure is only 20 per cent. Regardless of how 'success' is reported, the outcome is the same – of the 100 women who started a treatment cycle, 20 had a baby as a result.

The IVF process

Live births per started treatment cycle

This figure is the percentage of live births that result from a fresh embryo transfer in the one treatment cycle. If this figure is 20 per cent, it means that of all the women who start hormone stimulation, one in five will have a baby. This method of reporting has some limitations as it does not account for babies born following the transfer of frozen embryos.

Pregnancies per embryo transfer

This will generate the highest percentage figure as it does not count women who did not respond to the hormone stimulation; those with no eggs retrieved; and those who do not have an embryo transfer. This figure also includes women who may later miscarry.

Live births per embryo transfer

This figure is the percentage of women who have a baby after one embryo transfer procedure. The figure can vary depending on whether it relates to an embryo transfer after hormone stimulation or an embryo transfer of a frozen/thawed embryo.

Start of treatment cycle

Hormone stimulation — Fertility drugs given to develop a number of eggs (stimulated cycle). In a natural cycle, no superovulatory drugs are used.

Egg retrieval — Eggs are collected.

Embryo development — Sperm is added to the eggs for embryos to develop. Sometimes more than one embryo develops that is suitable for transfer. When there are several embryos available for transfer, most commonly one is transferred[1] and the remainder frozen for later use if there is no pregnancy. Sometimes, all embryos are frozen.

Embryo transfer — An embryo is placed in the uterus where it may implant and grow into a baby.

Clinical pregnancy — A pregnancy verified by ultrasound at approximately six–seven weeks into the pregnancy. A clinical pregnancy does not guarantee the birth of a baby, as miscarriages can occur.

Live birth — The birth of a living baby or babies (multiple births are classed as a single live birth).

[1] Single embryo transfer (transferring one embryo at a time) is considered the gold standard of practice in IVF to minimise the risk of multiple pregnancy which are associated with higher risk to both mother and babies.

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Understanding cumulative success rates

Some clinics' success rate figures are based on the overall chance of having a baby from all embryos that result from one stimulated cycle. Cumulative success rates include pregnancies that occurred immediately (following fresh embryo transfer) and in subsequent months (following transfer of thawed embryos), including cycles where all embryos had been electively frozen.

The 'cumulative success rate' figure is higher than the 'live birth rate per started treatment cycle' figure because it includes the added chance of having a baby from any frozen embryos resulting from the commencement of a treatment cycle.

IVF treatment outcomes in Victoria

Treatment outcome data is collected from registered ART providers in Victoria each financial year and presented in the VARTA Annual Report.

The latest annual report is available on our website.

www.varta.org.au

Understanding IVF success rate statistics from Australia and New Zealand

Every year, researchers at the University of New South Wales collect information about all IVF treatments in Australia and New Zealand and compile a report of the outcomes.

In 2013, they reported that of 100 women who started hormone stimulation in a single treatment cycle (not cumulative):

- 92 had eggs collected
- 69 had an embryo transfer
- 21 had a clinical pregnancy
- 16 had a live birth[2].

The fact that only 69 of the 100 women who started a stimulated cycle had an embryo transfer is in part explained by the increasingly common practice to freeze all embryos. If a woman has several embryos which are judged to have a good potential to develop into a baby, doctors often suggest that they are all frozen and transferred one-by-one in subsequent unstimulated cycles. This is because there is some evidence that this increases the chance of having a baby.

In 2013, almost half of all embryo transfer procedures performed in Australia and New Zealand were of frozen embryos and 22 per cent of women who started a treatment cycle with the intention to transfer a frozen embryo had a live birth.

The figures are the average for all clinics in Australia and New Zealand. There are differences between clinics' success rates which may relate to the skill and experience of the staff and the quality of the laboratory. The characteristics of the patients treated in individual clinics can also affect their overall results. Clinics that treat mostly young women with uncomplicated medical histories are likely to have better results than clinics that treat older women with more complex medical histories.

[2] Macaldowie A, Lee E & Chambers GM 2015. Assisted reproductive technology in Australia and New Zealand 2013. Sydney: National Perinatal Epidemiology and Statistics Unit, the University of New South Wales.

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Understanding your chance of success

Your chosen clinic's overall success rate may or may not apply to you as an individual. Your personal chances of success with IVF should be fully assessed and explained to you by your fertility specialist before you decide to start IVF treatment.

The most important factor in IVF success is the age of the woman undergoing treatment. The table below shows the effect of age on the chance of having a baby according to 2013 national data[3].

Age group	Chance of a live birth per started stimulated cycle*
Less than 30	27.2%
30-34	24.1%
35-39	16.3%
40-44	5.9%
More than 44	1.2%

** Excluding the chance offered by any frozen embryos*

These figures apply to women who use their own eggs. If an older woman uses eggs from a younger donor, her chance is the same as that of a woman in the donor's age group.

Other factors that affect the chance of success include:

- length of infertility
- whether a woman has had a baby previously
- the number of viable eggs that are left in a woman's ovaries (based on ovarian reserve testing)
- the number of eggs that are retrieved
- the stage of the embryo that is transferred (some clinics transfer embryos after 2-3 days and other clinics transfer embryos after 5 days, at the blastocyst stage)
- whether embryos are transferred in a stimulated or unstimulated cycle
- the quality and number of embryos formed, and
- the number of embryos transferred.

The number of IVF attempts also affects the chance of success. While IVF treatment is physically, psychologically and financially demanding, for most people, the ultimate chance of having a baby increases for each additional cycle (at least up to five attempts).

[3] Macaldowie A, Lee E & Chambers GM 2015. Assisted reproductive technology in Australia and New Zealand 2013. Sydney: National Perinatal Epidemiology and Statistics Unit, the University of New South Wales.

What you can do to improve your chance of success

Some lifestyle factors affect the chance of IVF success. To improve the chance of success, women and men are encouraged to:

- strive to be in the healthy weight range
- quit smoking
- reduce alcohol consumption
- eat a healthy nutritious diet
- exercise regularly
- take folate supplement (women only)
- avoid contact with toxic chemicals in the work and home environments, and
- have a thorough preconception health check to identify other factors that may affect the chances of success.

Questions to ask your IVF doctor

Here are some questions to ask to help you get a realistic idea of your chance of having a baby with IVF.

- Considering your circumstances and medical history, what chance of having a baby can you expect?
- What is the clinic's chance of a baby per started stimulated treatment cycle?
- What is the clinic's chance of success for women of your age?
- What proportion of women in your age-group have embryos available for freezing after a stimulated treatment cycle?
- What is the cumulative chance of having a baby for a woman of your age if she has three stimulated treatment cycles?

If you have further questions

It is important that you collect information from independent sources and then discuss any questions regarding treatment with your healthcare provider.

For more information about IVF and other assisted reproductive treatments, visit our website at www.varta.org.au or call 03 8601 5250

Useful sources of information

Access Australia
Australia's national infertility network
www.access.org.au

Your Fertility
for information on how to improve your chance of conceiving and having a healthy baby
www.yourfertility.org.au

Andrology Australia
for information on male infertility
www.andrologyaustralia.org

Better Health Channel
for health and medical information
www.betterhealth.vic.gov.au

VARTA
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