

# ART fact sheet

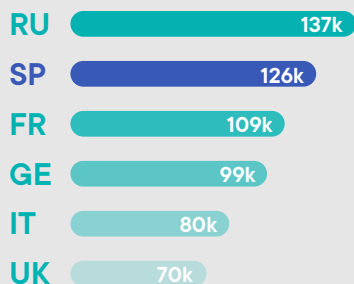
## Background

- One in six couples worldwide experience some form of infertility problem at least once during their reproductive lifetime. The current prevalence of infertility lasting for at least 12 months is estimated to affect between 8–12% worldwide for women aged 20–44.
- 20–30% of infertility cases are explained by physiological causes in men, 20–35% by physiological causes in women, and 25–40% of cases are because of a problem in both partners. In 10–20% no cause is found. Infertility is also associated with lifestyle factors such as smoking, body-weight and stress. Increasing age in the female partner is one of the most common explanations today.
- Most ART treatments take place in women aged between 30 and 39.

**+10  
MILLION  
BABIES**

Born worldwide  
since the first IVF  
baby in 1978

## In 2017 Spain was by far the most active IVF country in Europe



Europe leads the world in ART, initiating approximately 50% of all reported treatment cycles.

## Cycles / treatments

- In 2017, the latest year for which figures are available, 940 503 treatment cycles were reported from 40 European countries. This compares globally (in 2016) with 284 385 cycles from the US and 82 215 cycles from Australia and New Zealand. The number of cycles performed in many developed countries has grown by 5–10% per annum over the last few years, but that growth is now showing signs of slowing.
- The most 'officially' active countries in the world are Japan (448 210 cycles in 2017) (Ishihara et al., 2020) and the USA. ([www.cdc.gov/art](http://www.cdc.gov/art)). However, estimates are that China is now performing around 900 000 cycles per year, but so far not reporting to any registry (Bai et al., 2020)
- Close to 2 million ART cycles are now reported each year worldwide (ICMART 2021) with a reported 333 000 babies born. Registry figures are thought to represent around 70% of all ART treatments. Thus, around 2.6 million ART cycles are estimated each year, with about 500 000 babies born.

## Availability of ART

- The historical global need for ART was estimated to be at least 1 500 cycles/million population per year (ESHRE Capri Group, 2007) but needs to be reviewed according to the technologies involved.
- The Czech Republic, Denmark and Belgium have the highest ART availability in terms of cycles per million population with numbers higher than 2 500 cycles per million inhabitants.
- In Belgium, the Czech Republic, Denmark, Estonia, Iceland, Slovenia and Sweden more than 4.0% of all babies born were conceived by ART. By contrast the proportion in the USA was estimated to be slightly more than 1.0% of total births.

## Treatments

- The most common fertilisation (treatment) technique is ICSI. Overall, ICSI accounts for around 70% of all treatments worldwide. However, this proportion varies greatly between countries, even though outcome rates with each technique are comparable.
- Success rates from frozen embryo transfer are increasing, as are the number of frozen cycles. Vitrification, as an efficient cryopreservation technique, has improved the outcome of both embryo and oocyte freezing.
- Ovarian hyperstimulation syndrome (OHSS) is the most common complication related to ART, with a reported incidence rate of about 0.2%.

## In Vitro Fertilisation

(30%)

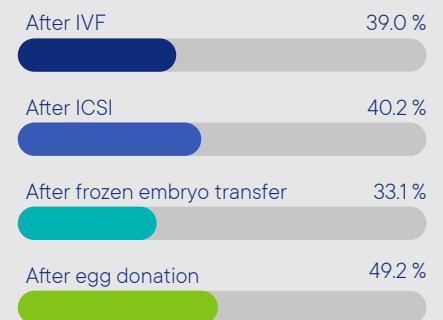
## Intracytoplasmic Sperm Injection

(70%)

## Pregnancies and delivery rates

- Large differences exist between countries in the number of embryos transferred and resulting multiple births. However, there is a consistent trend towards transfer of fewer embryos. The overall average number is 1.81 embryos per transfer.
- In Europe in 2017 the mean pregnancy rate per embryo transfer was 39.0% after IVF, 40.2% after ICSI, 33.1% after frozen embryo transfer and 49.2% after egg donation. Rates are higher in younger (<35 years) patients.
- An analysis of world data for 2017 puts the average delivery rate from ART treatment at 18.7% per aspiration and a 30.7% cumulative delivery rate from a single started aspiration.
- In Europe the multiple delivery rate per embryo transfer has declined steadily since 2000 from 26.9% to 15.0% in 2016.
- Sweden and Iceland have the lowest multiple delivery rate in the world. There, in more than 80% of all cases a single embryo was transferred.

## European mean pregnancy rate in 2017



## References

Bai et al., Assisted reproductive technology service availability, efficacy and safety in mainland China: 2016, Hum Reprod 2020, 35, 446–452.

Ishihara et al., Assisted reproductive technology in Japan: A summary report for 2016 by the Ethics Committee of the Japan Society of Obstetrics and Gynecology. Reprod Med Biol. 2020; 19: 3–12.

- <https://www.cdc.gov/art/artdata/index.html>
- <https://www.icmartivf.org/reports-publications>

ESHRE Capri Workshop Group. Social determinants of human reproduction. Hum Reprod 2001;16:1518–1526.