

# FERTILITY FIRSTS

Assisted reproduction technologies have come a long way since the 1950s, with advances in research resulting in IVF births now accounting for more than 2 per cent of total births in the UK. This timeline charts some of the major milestones that have changed fertility treatment worldwide over the past 70 years

## 1984

### Birth from cryopreserved embryo

Monash Group achieves the first birth from a frozen embryo, which had been preserved for two months before transfer into the uterus



## 1992

### Birth using intracytoplasmic sperm injection (ICSI)

ICSI takes place in vitro, where a single sperm is injected into the cytoplasm of an egg with a fine needle. The process becomes the most common and successful treatment for male infertility, offering an opportunity where conventional methods are not an option



## 1983

### Birth from donated eggs

Monash Group, an IVF centre in Richmond, Australia, achieves the first pregnancy by a woman without ovaries through the use of donor eggs



## 1953

### Birth using frozen sperm

American professor Jerome Sherman pioneers the method of preserving sperm using glycerol as a protectant and dry ice as a refrigerant. The sperm, once thawed, is able to fertilise an egg as "normal" through artificial insemination



## 1970s

### Cryobanks founded

The commercial cryopreservation of sperm (sperm banks) becomes popular and gains wider public acceptance



## 1978

### IVF baby born

In vitro fertilisation (IVF), where an egg is fertilised outside the body, results in the birth of the first "test tube baby", Louise Joy Brown, in Oldham General, Manchester. The specialists involved were Patrick Steptoe, Sir Robert Edwards and Jean Purdy, though others were also trying at the time. Four years later, Louise's sister Natalie becomes the 40th IVF baby. Dr Edwards later goes on to win the Nobel prize in medicine



## 1990

### Genetic profile

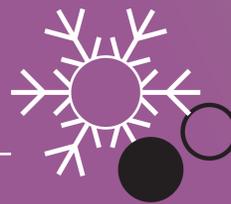
Preimplantation genetic diagnosis is introduced to determine the profiles of embryos before implantation, enabling doctors to screen for a specific genetic disease. Preimplantation genetic screening is later developed to screen for abnormal numbers of chromosomes in the embryo, the leading cause of miscarriage and implantation failure



## 1986

### Birth from cryopreserved egg

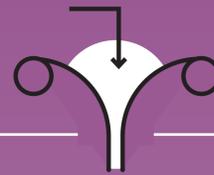
Human egg cryopreservation is developed to enable women to postpone their maternity beyond their most fertile years. Dr Christopher Chen, from Singapore, the scientist responsible for the breakthrough, said 80 per cent of eggs survived the freezing process and 85 per cent of those fertilised as normal; the survival rate is said to be almost double that of frozen embryos



## 2014

### Birth using uterine transplant

A 35-year-old woman born without a uterus undergoes IVF with her partner before having a uterus implanted from a 61-year-old donor. The cryopreserved embryos are then transferred a year later, resulting in pregnancy. The results of the treatment prove the feasibility of uterus donation, even from a post-menopausal donor



## 2018

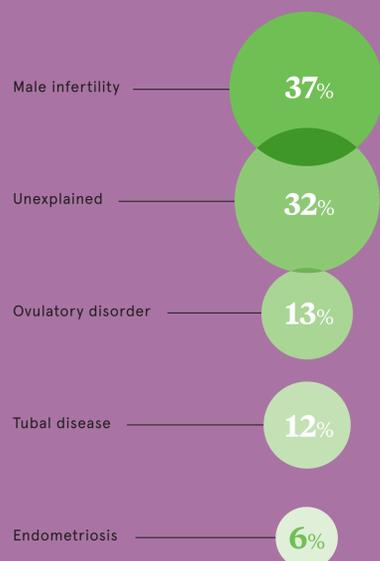
### Drug-free IVM technique

A revolutionary treatment is developed that could provide a safer and cheaper alternative to conventional IVF. While IVF uses medication to bring eggs to maturity before they are removed from the ovary, in vitro maturation (IVM) retrieves immature eggs and brings them to maturity in an ovarian cell culture taken from the patient, before ICSI is used for fertilisation. The new method involves little to no hormone stimulation of the ovaries – contrary to IVF – and could be beneficial to women with polycystic ovarian syndrome or those recovering from cancer



### Reasons for IVF treatment

Percentage of recorded reasons only



### Birth rates for IVF treatment 1991-2016

Latest UK statistics



### IVF treatment cycles, by age of patient in 2016

Latest UK statistics



**6.5m**

last published estimate of global births as a result of assisted reproduction technologies

European Society of Human Reproduction and Embryology 2016

Human Fertilisation and Embryology Authority (HFEA) 2018