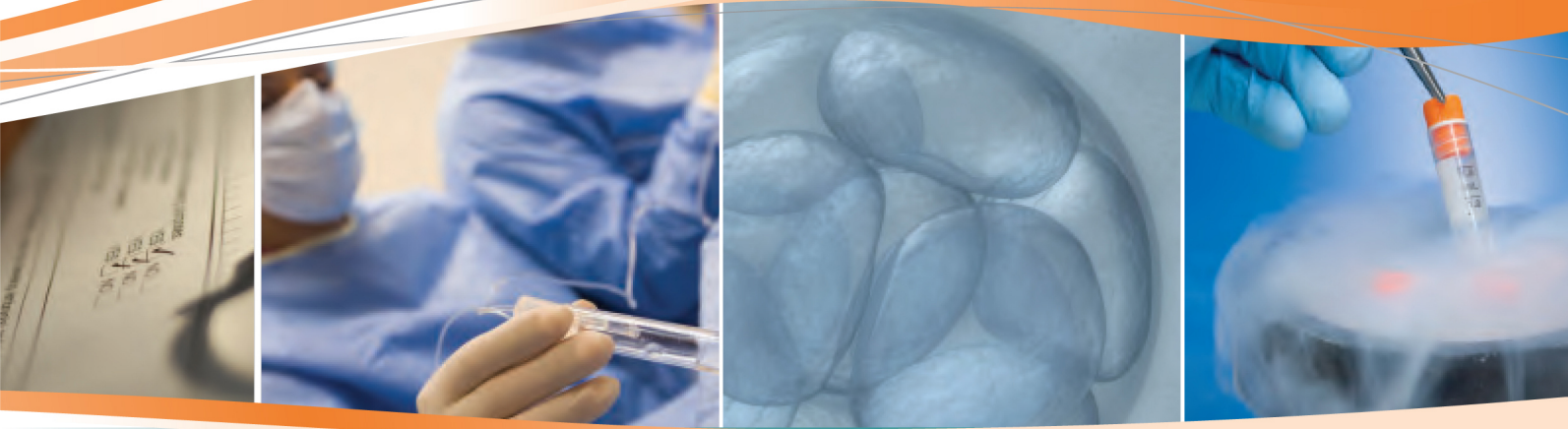


Fertility treatment in 2013



trends and figures

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Chair's foreword

This is the fourth annual trends and figures report published by the Human Fertilisation and Embryology Authority (HFEA), which now carries 'official statistics' status. The aim of this report is to provide patients, clinic staff and other interested parties with up-to-date, high quality information about a range of topics in the sector.

Since 1991, clinics have submitted data to us about each treatment they carry out and its outcome. We hold this information on a database called the HFEA Register.



We use this to provide important information to those affected by donor conception, to patients seeking treatment and, to inform our work to enhance the quality of care that patients and donors receive in clinics.

By submitting that data, clinics also enable researchers at UK universities to apply to use treatment data to investigate the impact of treatment on the long-term health of women and their babies, as well as the different factors that might affect treatment outcomes.

We are in the midst of an ambitious programme of work to improve how we collect information and how it is subsequently used and published. Patients will be able see these improvements most when they visit the [Choose a Fertility Clinic](#) section on our website. The clinic by clinic information provided there is widely accessed by patients and we will improve this service to make the data easier to interpret, and to allow patients to choose the best clinic for them based on our inspection findings and other patients' experiences, as well as on success rates.

This report shows that the number of women having treatment is increasing and success rates keep improving, while multiple births, the greatest risk of fertility treatment, are being consistently reduced. We are therefore seeing more and more people, from a broad spectrum of society, able to have the chance to create the family they want.

A handwritten signature in black ink that reads "S Cheshire". The signature is written in a cursive, flowing style.

Sally Cheshire
Chair

Summary

About the HFEA

The HFEA is the independent regulator of fertility treatment in the UK. Part of our role is to collect data about every treatment cycle performed in licensed fertility clinics in the UK. This information is held on a database called the HFEA Register and each year around 60,000 new treatment cycles are recorded and validated.

The data on the Register tells us a lot about what is happening in the sector and we know that this information can be very useful to a wide variety of people – from clinic staff to the general public. We therefore publish regular reports setting out trends and figures, with this particular report being one of our annual publications.

About this report

This report presents key information about the patients treated, the different treatments used and the pregnancy rates for fertility treatment cycles carried out in 2013. We also report on the live birth rates for treatment cycles carried out in 2012.

It shows that the overall pregnancy and live birth rates have increased at a time of notable changes to clinical practice. An increasing number of embryo transfers are blastocyst stage embryos and more women are opting to have only one embryo transferred at a time to reduce their risk of a multiple pregnancy¹. We have also seen the overall multiple pregnancy and multiple birth rates fall.

The key findings in this report are as follows:

- The number of women receiving in vitro fertilisation (IVF) and donor insemination (DI) treatment continues to grow.
- While the number of fresh IVF cycles has remained broadly steady, the number of cycles using thawed frozen embryos has increased by around 10%.
- The number of cycles using donated eggs has increased substantially over the last five years. Over half of women aged 45 and over having IVF use donated eggs.
- The pregnancy and live birth rates have both shown a small year-on-year increase. Now, around a quarter of cycles started using a woman's own fresh eggs results in a live birth. For women aged under 35, this figure is one third.
- Multiple pregnancy and birth rates have continued to decline. In 2013, one in six pregnancies was a multiple pregnancy, compared with one in four in 2008.

¹ A multiple birth (twins, triplets or more) is the single greatest health risk of fertility treatment which carries risks to the health of the mother and the unborn child. For more information, go to the [one at a time website](#).

Background

How we gathered the data

Clinics are required by law to provide information to the HFEA about all licensed fertility treatments they carry out. We hold this information on the HFEA Register, which contains information about fertility patients, the treatment they received and its outcomes.

Understanding the data analysis

In this report we publish both live birth and pregnancy data. We are able to publish pregnancy information much sooner after the treatment cycle than live birth data. However, pregnancy rates do not show the full picture of success that a live birth rate does, as unfortunately not all pregnancies end in a live birth. This information is given to provide a more up-to-date picture of current clinical practice and outcomes.

The information that we publish is a snapshot of data provided to us by licensed clinics at a particular time. The figures supplied in this report are from the HFEA data warehouse containing Register data as at 26 November 2014. Before publication, we carefully check the data and ask the clinics to confirm its accuracy, for which they remain responsible.

As clinics may submit data relating to past cycles at any time, the figures published here may differ slightly to those published before or in the future.

Accessing the data

The data in this publication has, except in specific circumstances, been presented as percentages in order to draw comparisons and maintain understanding for lay readers. If you would like to access the absolute figures, these are available to download as an Excel file from our website www.hfea.gov.uk.

We also publish a version of our Register in an anonymous form on our website. The data can be imported into a spreadsheet or statistical package for analysis. The data is updated periodically and you can choose to be notified when this happens.

If you are a researcher at a UK institution you may be able to apply for access to identifiable data for a specific project. Please email [Suzanne Hodgson](mailto:Suzanne.Hodgson@hfea.gov.uk), Researcher in Statistics and Epidemiology, for more information.

Terms and acronyms used in this report

Term/acronym	Meaning
Donor insemination (DI)	Broad term covering fertility treatment using donor sperm where fertilisation takes place inside a woman's body. Donor sperm is introduced either to the woman's uterus (intrauterine insemination), cervix (intracervical insemination), or vagina (intravaginal insemination).
Double embryo transfer (DET)	When two embryos are transferred to a woman's uterus at the same time.
Elective single embryo transfer (eSET)	When a woman opts to reduce the risk of a multiple birth by having one embryo transferred in a treatment cycle despite having more available.
In vitro fertilisation (IVF)	Where a woman's eggs and a man's sperm are collected and placed together in a laboratory to achieve fertilisation outside the body.
Intra-cytoplasmic sperm injection (ICSI)	A variation of IVF in which a single sperm is injected directly into a woman's egg.
Intrauterine insemination (IUI)	A form of DI where a man's sperm is placed directly into a woman's uterus.
Live birth	A birth of at least one baby showing some signs of life.
Live birth rate (LBR)	The percentage of cycles started in one year which resulted in a live birth.
Multiple birth	A birth where more than one live baby is born.
Multiple birth rate (MBR)	The percentage of live births that were of more than one live baby.
Pre-implantation genetic diagnosis (PGD)	A technique that enables people with a specific inherited condition in their family to avoid passing it on to their children. It involves checking the genes of embryos created through IVF for the particular genetic condition.

A full glossary of terms, acronyms and abbreviations is available on our [website](#).

Revisions policy

No revisions are planned to this publication unless errors are found which will be corrected.

Next publication date

This report is annual and is next due to be published in autumn 2015.

Contact us regarding this publication

Media: press.office@hfea.gov.uk

Statistical: statistics@hfea.gov.uk

Frequently asked questions

What is infertility?

Infertility has been defined as a failure to conceive after regular unprotected sexual intercourse for one to two years². Guidelines published by the National Institute for Health and Care Excellence (NICE) recommend that a woman of reproductive age who has not conceived after one year of unprotected vaginal sexual intercourse, in the absence of any known cause of infertility, should be offered further clinical assessment and investigation along with her partner.

A woman can be offered an earlier referral to a specialist if she is aged 36 years or over, there is a known clinical cause of infertility, or a history of predisposing factors for infertility.

Is infertility a common problem?

Fertility problems are estimated to affect one in seven heterosexual couples in the UK. Most couples (about 84 out of every 100) who have regular unprotected sexual intercourse (that is, every two to three days) will get pregnant within a year. About 92 out of 100 couples who are trying to get pregnant will do so within two years.³

What do you mean by fertility treatment?

We use the phrase 'fertility treatment' to cover the medical techniques which assist women to have children. Types of fertility treatment include in vitro fertilisation (IVF), intra-cytoplasmic sperm injection (ICSI) and donor insemination (DI).

In this publication, we use 'IVF' to cover both 'standard' IVF and ICSI, unless otherwise specified. In IVF, a woman's eggs are removed from her ovaries by a doctor and are combined with sperm in a laboratory. If embryos develop, some or all of them are transferred to the woman's uterus.

A full list of treatments available and descriptions of what they involve can be found on our website www.hfea.gov.uk.

What do you mean by a treatment cycle?

Fertility treatment, such as IVF, normally happens over a period of about two weeks or more. It is therefore called a cycle of treatment rather than a one-off procedure. The start of a cycle is usually taken to be when the woman starts taking drugs to stimulate egg production.

² National Institute for Health and Care Excellence (NICE). Fertility: assessment and treatment for people with fertility problems. NICE clinical guideline CG156, February 2013. Available at: <http://guidance.nice.org.uk/CG156>.

³ Ibid.

In this report we include data on all the cycles that were started, even if they were discontinued before they were completed.

How do you determine the live birth rate, pregnancy rate, and multiple pregnancy and birth rates?

Unless otherwise stated, all the pregnancy rates we quote in this report are for one calendar year. They are calculated as follows:

- **Birth rates per cycle started:** the percentage of cycles started in one year that resulted in a live birth.⁴
- **Pregnancy rates per embryo transfer:** the percentage of embryo transfer procedures that resulted in a woman becoming pregnant (as confirmed by ultrasound).⁵ The pregnancy rate per embryo transfer is used to compare pregnancy rates after different types of embryo transfer have been performed (ie, elective single embryo transfer (eSET), double embryo transfer (DET), blastocyst stage embryo transfer or cleavage stage embryo transfer).
- **Multiple pregnancy rate:** the percentage of all pregnancies (confirmed by ultrasound) that are of more than one fetus.⁶
- **Multiple birth rate:** the percentage of all live births that resulted in the birth of more than one live baby.⁷

What outcomes are included in your results data?

Our data is presented by the year the treatment cycle started, not the year a resulting pregnancy or birth was reported in. Other data providers, such as the Office for National Statistics (ONS), publish birth rates according to the year the child was born.

There are different ways to account for the outcomes of treatment. Our live birth data counts all births where one or more babies were born showing some sign of life, including those who go on to die within the first month of life (neonatal deaths). Our multiple birth data counts only births where two or more babies were born alive, including those where one or more of the babies died within the first month of life.

⁴ To calculate this, we divide the number of live births resulting from cycles started in a given year, by the number of cycles started in the same year. This is multiplied by 100 to give a percentage.

⁵ To calculate this, we divide the number of pregnancies (confirmed by ultrasound) by the number of embryo transfers. This is multiplied by 100 to give a percentage.

⁶ To calculate this, we divide the number of pregnancies which have two or more fetal sacs (multiple pregnancies) by the number of pregnancies which have confirmed one or more fetal sacs (all pregnancies). This is multiplied by 100 to give a percentage.

⁷ To calculate this, we divide the number of live births which include two or more babies showing some sign of life at birth (multiple births), by the number of births which included one or more babies born showing some sign of life at birth (all births). This is multiplied by 100 to give a percentage.

Still births – where a baby is born after 24 weeks gestation showing no signs of life – are not included in either live birth or multiple birth counts. This means that a multiple pregnancy which results in the birth of one live baby and one stillborn baby is not counted by the HFEA as a multiple birth. The ONS, however, classes a multiple birth as a pregnancy resulting in the birth of more than one baby, whether alive or stillborn.

Why is the 2012 birth data only being published now?

Results are published according to the year in which the treatment cycle was started and clinics then have around one year to report the results to us. Once submitted, data is checked, which takes time but is essential to ensure the figures are accurate.

Where can I get more information about individual clinics?

The [Choose a Fertility Clinic](#) search function on our website has been designed so patients can easily find the latest and most complete information about each UK licensed fertility clinic, helping them to decide which clinic best suits them.

Why do the results for older women seem to vary so much year to year?

We have broken down most of the results presented here into standard age groups. The majority of cycles performed are in women under 40 years of age and as the age increases, the number of women in each group decreases.

If there is only a small number of women in an age group it can make results appear to be very changeable, when expressed as a percentage. For instance, one year we may see that from 1,000 cycles performed in the youngest age group, there were 300 live births. This would give a live birth rate of 30%. We may see in the same time period that only 10 cycles were performed in the oldest age group, three of which resulted in live births. This also results in a live birth rate of 30%. If the number of cycles stayed the same in the subsequent year, but one less woman in each age group had a live birth, the percentages would change to 29.9% for the younger women (barely changing), and to 20% for the older age group (it appears the rate has dropped dramatically). As larger groups are less affected by small changes (possibly caused by chance occurrences), they tend to remain steadier.

For this reason, we do not present percentages where the group size (for instance the number of cycles performed) is fewer than 50. In groups where the numbers are less than five, identification of patients becomes a risk, so we have aggregated age groups so that the group size is greater than 50.

Overview

How many fertility clinics were there in the UK in 2013?

In 2013, 78 licensed clinics performed IVF treatment and 75 performed DI treatment.⁸ As in previous years, a third of clinics are based in London and the South East (see table 1).

The number of women treated in each region ranged from 1,322 in Wales to 15,469 in London. This figure is based on the location of the clinic, rather than where women live, as patients sometimes travel to different regions for treatment – particularly in London.

Table 1: Number of women receiving fertility treatment at clinics performing IVF and DI in the UK (2013)

Region	Clinics performing IVF	Clinics performing DI	Women treated ⁹
North East	5	5	1,796
North West	4	4	5,420
Yorkshire & Humber	4	4	2,960
East Midlands	4	5	3,020
West Midlands	7	8	3,263
East of England	6	6	2,771
London	18	19	15,469
South East	11	9	5,736
South West	6	6	2,560
Northern Ireland	2	1	1,358
Scotland	7	5	3,850
Wales	4	3	1,322

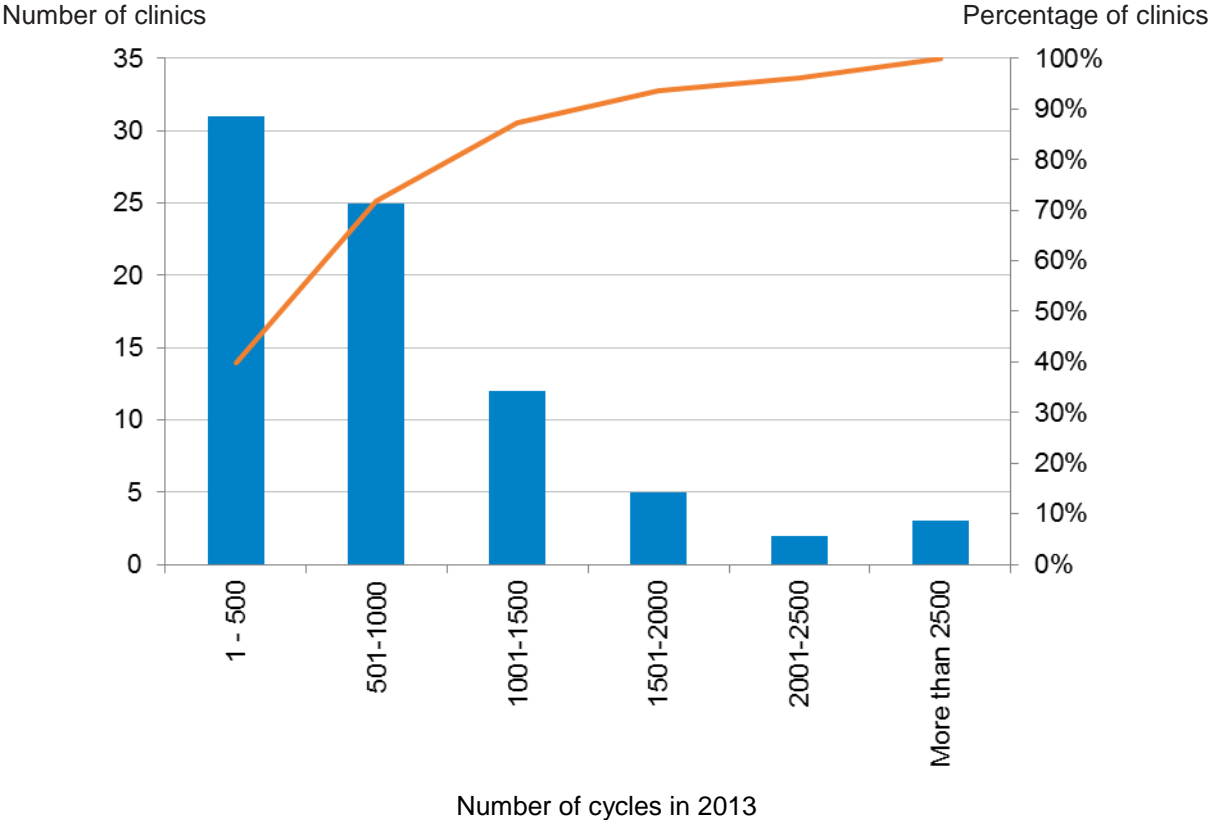
⁸ A total of 83 clinics performed treatment. This does not include clinics only providing IUI with partner sperm.

⁹ The sum of this column is greater than the total number of women treated as some women will have received treatment in more than one location. Women may have also received both IVF and DI treatment in one year.

The clinics carried out widely varying numbers of treatment cycles in 2013, ranging from fewer than 50 IVF cycles in some clinics to over 2,500 IVF cycles in others (see figure 1).

Around half of the IVF cycles performed in the UK were performed in around a quarter of the clinics.

Figure 1: Number of IVF cycles performed by clinics per year and cumulative percentage (2013)



How many women received fertility treatment?

In 2013, 49,636 women had a total of 64,600 cycles of IVF or ICSI and 2,379 women had a total of 4,611 cycles of DI. In 2012, 62,158 cycles of IVF or ICSI and 4,452 of DI were performed. Therefore, 2013 saw an increase of 3.9% in the number of treatment cycles and an increase of 3.6% in the number of DI cycles, respectively.

Of the women who had IVF or ICSI treatment in 2013:

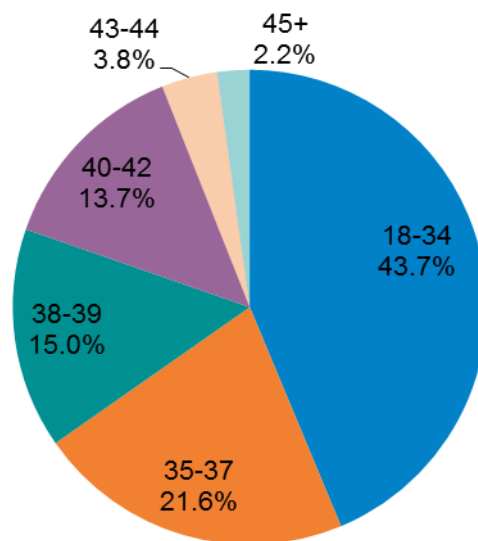
- The vast majority, 46,538 (93.8%), started treatment to try to conceive a baby during that cycle of treatment. This is very slightly less than the number we reported for 2012 (94.8%) and 2011 (95.8%).

- 3.8% were part of an egg sharing agreement, or had treatment to produce eggs or embryos for donation.¹⁰
- 2.4% had treatment but did not have an embryo transfer straight away, instead storing their eggs or embryos for later use. While this number is still small, there has been a small, but noticeable, increase over recent years. It was 1.7% in 2012 and 0.8% in 2010. In the past, very few women had treatment specifically to store eggs or embryos for later use without an acute medical reason, such as side effects of stimulation, or needing medical treatment which may affect fertility (such as for cancer). Some clinicians think that embryo transfers may be more successful when the woman has not just undergone stimulation or egg collection. Also, women may be freezing their eggs for social reasons, in order to preserve their fertility.

How old were the women receiving treatment?

Almost two thirds of women who received IVF treatment in 2013 were aged 37 years and under (see figure 2). There has been no change in the age distribution of women receiving IVF treatment since 2012.

Figure 2: Percentage of all IVF cycles performed by age group (2013)



Women having IVF treatment were on average 35 years old and the average length of time patients reported trying to conceive was 4.5 years (range 0 to 20 years).

Women having DI treatment were on average 35 years old and had, on average, been trying to conceive for 3.7 years (range 0 to 20 years).

¹⁰ Egg sharing is where a woman seeking IVF herself donates some of her eggs from a treatment cycle to up to two other women in return for benefits in kind, usually a reduction in the cost of treatment.

For information on how the age of women receiving treatment has changed over time, please see figure 21.

Who funded the treatment?

A minority, 41.3% (25,571) of IVF treatment cycles were funded by the NHS in 2013. The majority, 58.7% (36,292), were privately funded. This is a similar proportion to fertility treatment started in 2012, where the figures were 40% and 60% for NHS and privately funded cycles respectively.

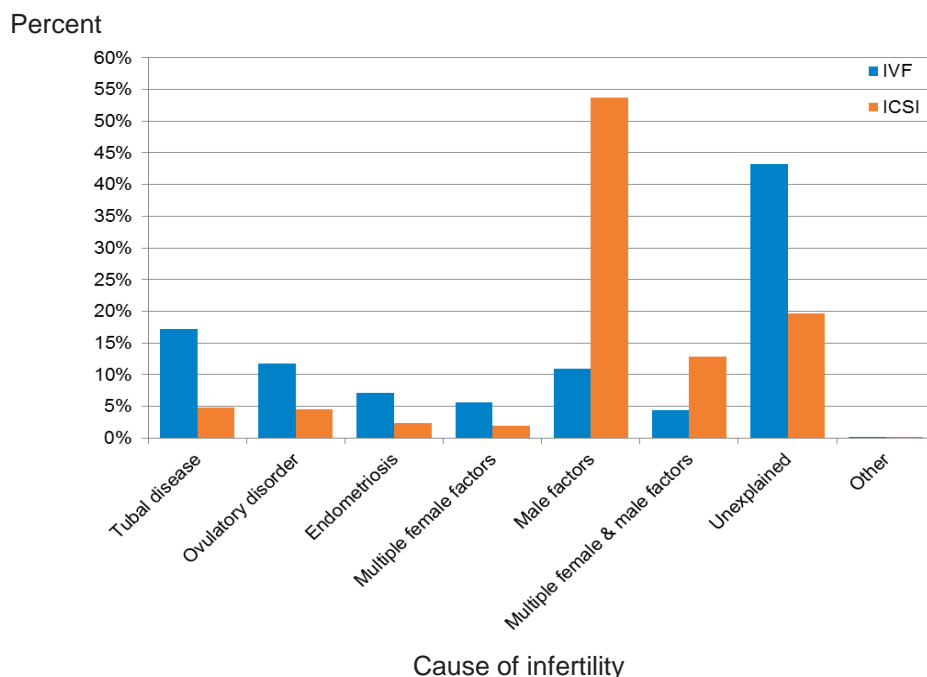
For treatment cycles using DI, 15.4% (709) of cycles were funded by the NHS in 2013, slightly less than the percentage funded by the NHS in 2012 (16.4%).

What types of infertility were treated with IVF or ICSI?

About half (52.6%) of fresh IVF treatments in 2013 involved ICSI; a similar proportion to that seen in recent years (2012: 53.1%; 2011: 53%).

As ICSI involves the injection of a single sperm into an egg, it can be used in male factor infertility such as low sperm count or low sperm motility. This is reflected in figure 3¹¹, where the proportion of male factor infertility treated with ICSI is much greater than that by standard IVF.

Figure 3: Percentage of standard IVF or ICSI cycles started by the reasons for seeking treatment (2013)



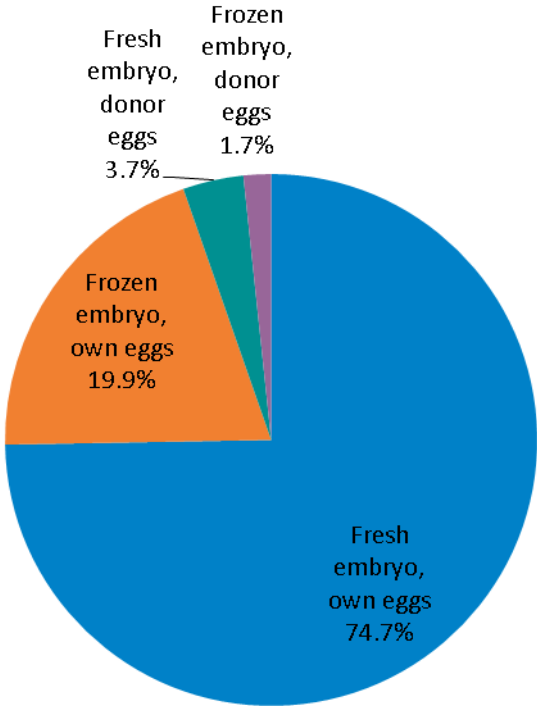
¹¹ We have removed the category 'uterine', which was included in previous reports, as this has been 0% of cycles for the past two years.

It is important to note that the cause of infertility is recorded at the start of a treatment cycle and it is possible that further problems may become apparent during treatment (or in the case of unexplained infertility, cause may be found later on).

What types of cycles were started?

In the majority of IVF treatment cycles – three quarters – a woman’s own freshly collected eggs were used (figure 4). A smaller number of women used embryos which had been frozen previously and subsequently thawed before transfer. These embryos may have been created using their own or donated eggs. Around 5% of IVF cycles used donated eggs.

Figure 4: Proportion of IVF treatment cycles started, using fresh or frozen embryos created from donor or own eggs (2013)

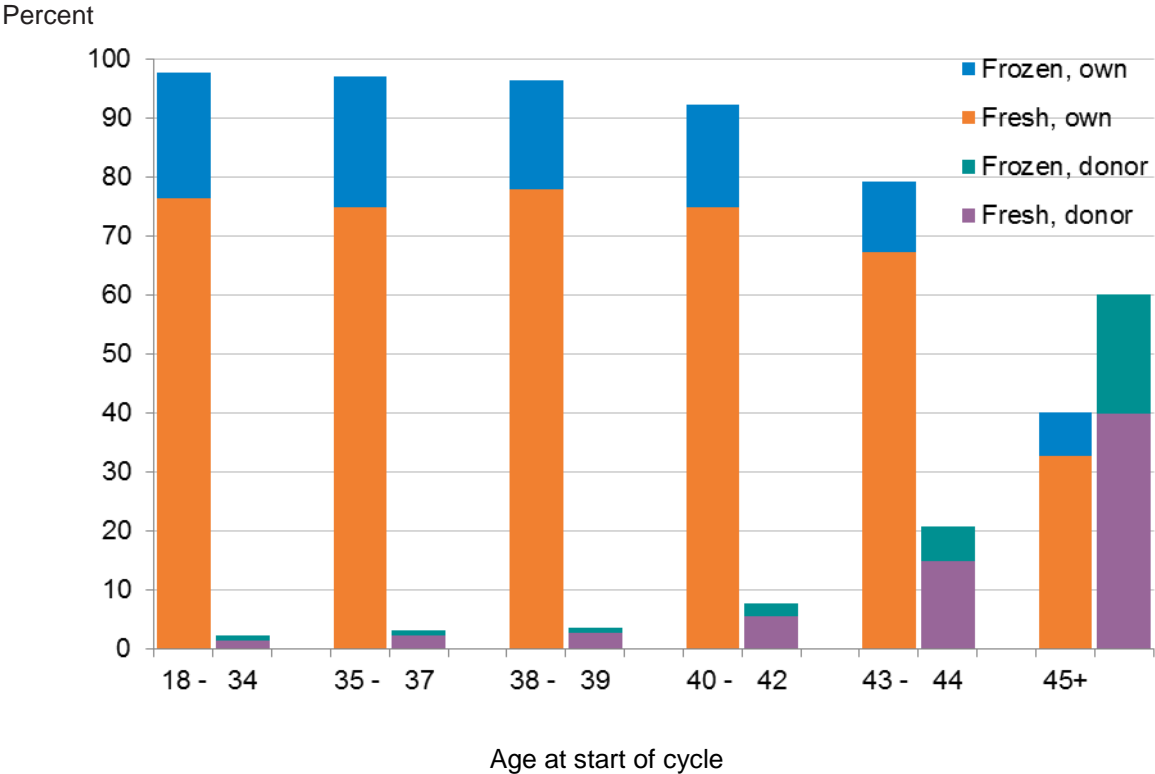


How did the age of the women being treated affect which IVF treatment they received?

The type of IVF cycle (fresh or frozen, donor or patients’ own eggs) varied according to the woman’s age. As noted above, the majority of women used their own eggs. However, below (figure 5), we see that the proportion of women using donor eggs increased with age.

This distribution has changed slightly since 2012 when we noted that patients over 45 years old were using donor eggs more often than their own. Now, that proportion is even greater; around 60% of cycles in women 45 and over use donor eggs.

Figure 5: The distribution of different treatment types by patient age (2013)



Fresh and frozen cycles

Over recent years, we have seen a proportionately greater increase in cycles using frozen and thawed embryos (10.1%), compared with that seen in cycles using freshly created embryos. Consequently, the proportion of cycles using frozen embryos has increased (table 2).

Table 2: Proportion of fresh and frozen treatment cycles started using patients’ own eggs (2012 and 2013)

	2012		2013	
	Fresh	Frozen	Fresh	Frozen
Proportion of cycles	80.6%	19.4%	78.9%	21.1%

Stimulated and non-stimulated cycles

Some fertility clinics offer natural IVF cycles where no stimulatory drugs are used. Of the 46,125 fresh cycles performed in 2013 using a woman’s own eggs, 807 (1.7%) were natural cycles. This proportion is similar to 2012, when the figure was 625 (1.3%).

Of the 4,611 DI cycles performed in 2013, around half (54.4%) did not use stimulatory drugs. This represents an increase since 2012, when 51.5% did not use stimulatory drugs.

Pre-implantation genetic diagnosis (PGD)

PGD is used in conjunction with IVF and is where a few cells are removed from an embryo and tested for a specific genetic disorder before the embryo is transferred into the woman's uterus. PGD is used to look for a specific disorder in prospective parents with a high risk of transmitting a serious hereditary condition, such as cystic fibrosis or Huntington's disease. An up-to-date list of all the disorders for which PGD is allowed can be found on our [website](#).

Eighteen clinics provided PGD in 2013. A total of 577 of the IVF treatment cycles started in this year involved PGD, which is an increase on the 533 cycles started in 2012. Figures for 2012 below include the live birth rate, 25.7%, which has decreased since 2011 (28.2%) and 2010 (31.6%).

Table 3: Number of PGD treatment cycles and results (2012)

Number of cycles	533
Number of patients	422
Number of births	137
Number of babies	149
Live birth rate per cycle started	25.7%

How many treatments involved donated sperm?

Donor insemination

A total of 75 clinics performed DI treatment in 2013. The number of DI cycles performed in the UK has increased between 2012 and 2013 (table 4).

Table 4: Number of DI treatment cycles (2012 and 2013)

Age	2012	2013
18–34	2,036	2,180
35–37	977	946
38–39	603	651
40–42	577	667
43–44	179	105

45+	102	63
All ages	4,474	4,611

IVF using donated sperm

A total of 2,527 fresh IVF cycles started in 2013 involved the use of donor sperm, an increase of 6.5% from 2012, following a similar increase from 2011.

Table 5: Number of IVF treatment cycles performed using donor sperm (2012 and 2013)

	2012	2013
Number of cycles	2,372	2,527

For information on the outcome of treatments using donated sperm, see table 17.

How many treatments involved donated eggs?

Donated egg cycles do not include those donated as part of an egg sharing agreement. The number of cycles where freshly donated eggs are used with partner sperm, has increased substantially over the past five years, from 1,262 in 2009 to 1,866 in 2013.

We saw in our recent report, [Egg and sperm donation in the UK:2012–2013](#), that the number of women showing an interest in donating their eggs, and subsequently doing so, has increased over recent years. The impact of this increase seems to be an increase in the number of cycles using donated eggs. While the greatest number of recipients is women aged over 45, the most substantial increase has been seen in women aged under 35.

Table 6: Number of IVF cycles using fresh donated eggs and partner sperm (2009–2013)

Age	2009	2010	2011	2012	2013
18–34	171	179	199	265	267
35–37	161	149	182	201	244
38–39	161	157	166	173	214
40–42	258	286	327	392	393
43–44	209	205	217	282	302
45+	301	355	384	391	441

All ages	1,262	1,332	1,475	1,704	1,866
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How many treatments involved donated eggs and donated sperm?

Some people undergoing treatment receive both donated eggs and donated sperm; in some cases a complete embryo is donated (for instance by a couple who have completed their family, but still have some embryos in storage). In other cases, separate egg and sperm donors are sought. Because embryos are often donated frozen, we present the fresh and frozen figures together below; separate figures can be obtained in the datasheet accompanying this report.

As seen with cycles using just donated eggs, or just donated sperm, there has been a substantial increase in the numbers performed with the overall number of cycles more than doubling in five years (table 7).

Table 7: Number of IVF cycles using donated eggs and donated sperm (fresh and frozen), 2009–2013

Age	2009	2010	2011	2012	2013
18–34	81	99	144	128	212
35–37	32	45	47	53	82
38–39	16	32	39	49	59
40–42	47	67	62	95	107
43–44	34	55	56	43	74
45+	46	72	83	106	159
All ages	256	370	431	474	693

Key points

- The number of women receiving IVF and DI continues to grow. The rate of growth in IVF cycles has slowed recently, whilst the rate of growth in DI cycles has increased.
- Two thirds of women having treatment were aged 37 and under.
- There has been a substantial increase in the number of IVF cycles using donated sperm, eggs, or both.
- Patients over 45 years old are now using donated eggs more often than their own.

Embryo transfers

How many embryos were transferred during 2013?

A total of 85,767 embryos were transferred during the course of fertility treatment started in 2013.¹² Of these:

- 28,244 fresh embryos were transferred during IVF treatment
- 37,566 fresh embryos were transferred during ICSI treatment, and
- 18,780 thawed embryos which had previously been frozen were transferred.

How many embryos were transferred in each cycle?

Clinics are required to limit the number of embryos transferred in order to reduce the chance of a multiple birth. For women under the age of 40 years, one or two embryos can be transferred in a treatment cycle. For women aged 40 years or over, a maximum of three embryos can be transferred. Remaining embryos may be frozen for future IVF attempts if they are suitable.

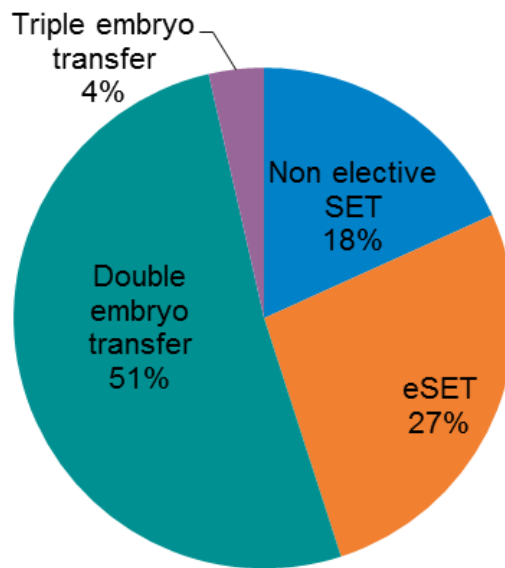
Women who have a good chance of becoming pregnant and have several embryos available may choose to only have one embryo transferred in order to reduce the risk of a multiple pregnancy. This is known as elective single embryo transfer, or eSET.

While two embryos were transferred in the majority of cycles performed in 2013 (51%), as in previous years, the proportion of eSETs has increased by five percentage points since 2012 (figure 6). Around one in four women overall (27%) had eSET and 18% had non-elective SET (ie, only one embryo was available for transfer). In 2012, 22% of women had eSET and 18% received non-elective SET.

For information relating to fresh cycles, the accompanying datasheet is available to download from our website www.hfea.gov.uk.

¹² 341 embryos were transferred during treatment involving both IVF and ICSI. 1,046 embryos were transferred during pre-implantation genetic diagnosis (PGD), pre-implantation genetic screening (PGS), in-vitro maturation (IVM) or unclassified cycles.

Figure 6: Proportion of embryo transfers (fresh and frozen) by the number of embryos transferred (2013)



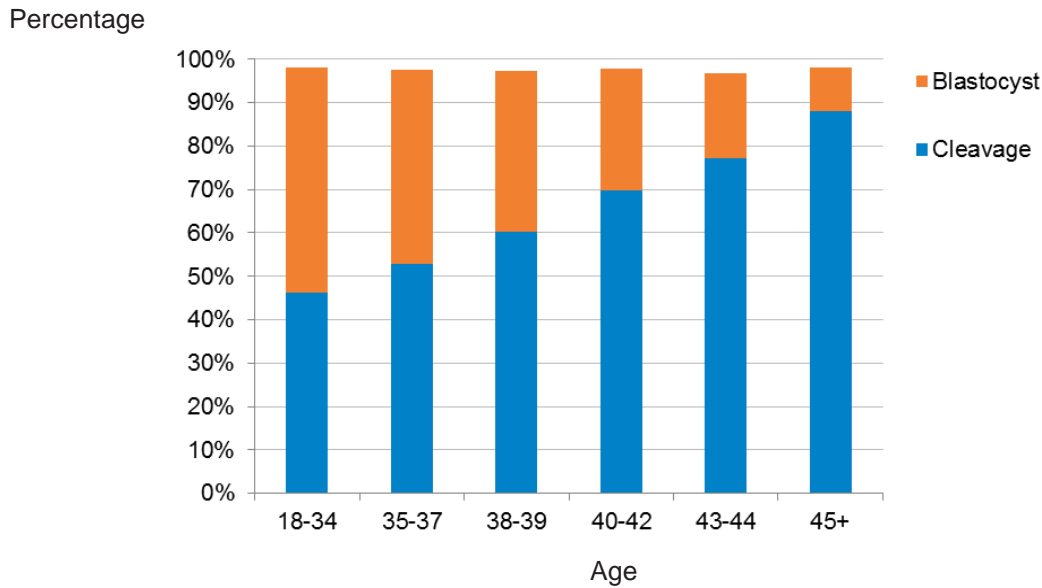
Does the number of embryos transferred differ for cleavage or blastocyst-stage embryos?

Blastocysts are embryos which are grown in a laboratory incubator for five to six days before they are transferred into the uterus. Cleavage-stage embryos are those grown for two to three days before transfer. Not all embryos will develop into blastocysts and clinics use their judgement to decide whether to continue culturing embryos beyond cleavage stage.

Blastocyst transfer has been increasing in the UK over the past five years. Previously, almost all embryos were transferred as cleavage-stage embryos.

Overall, younger women had a higher proportion of blastocyst transfers than older women and over half of embryo transfers in women aged under 35 were of blastocyst-stage embryos. The proportion of cleavage stage transfers gradually increased with age (figure 7).

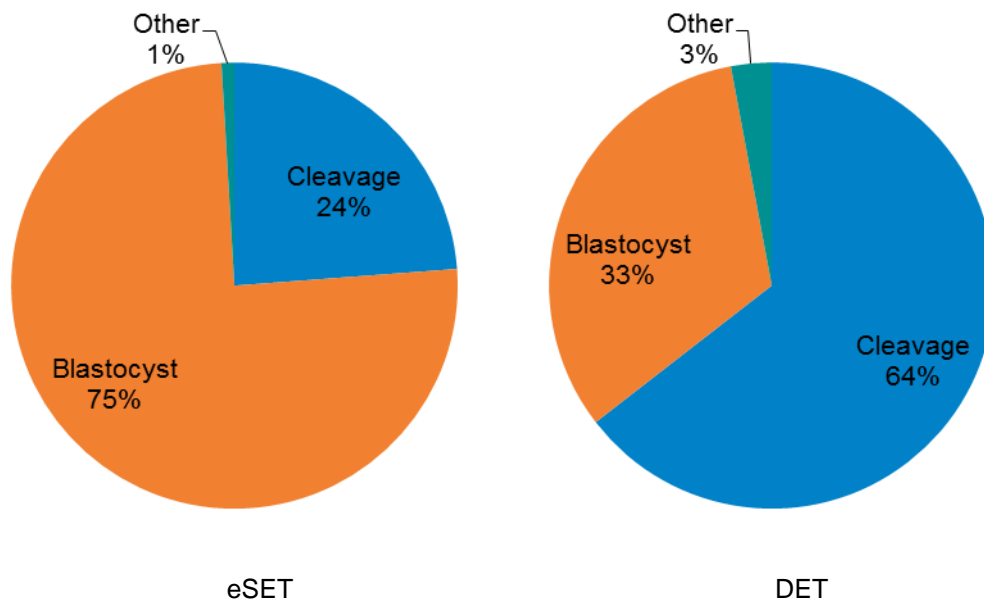
Figure 7: Percentage of fresh embryo transfers involving cleavage or blastocyst stage embryos (2013)



It is important to note that the bars do not sum to 100% as a small number of embryos are transferred at day one (2PN stage), or day four (morula stage).

We noted in previous reports that the picture regarding blastocyst transfer is slightly different with eSET. In 2013, three quarters (75%) of eSET transfers were of blastocyst-stage embryos, which is an increase of around five percentage points on 2012. However, where two embryos are transferred, around two thirds (65%) were of cleavage-stage embryos in 2013, a decrease of around four percentage points on 2012.

Figure 8: Percentage of fresh eSET and DET embryos transferred by embryo stage (2013)



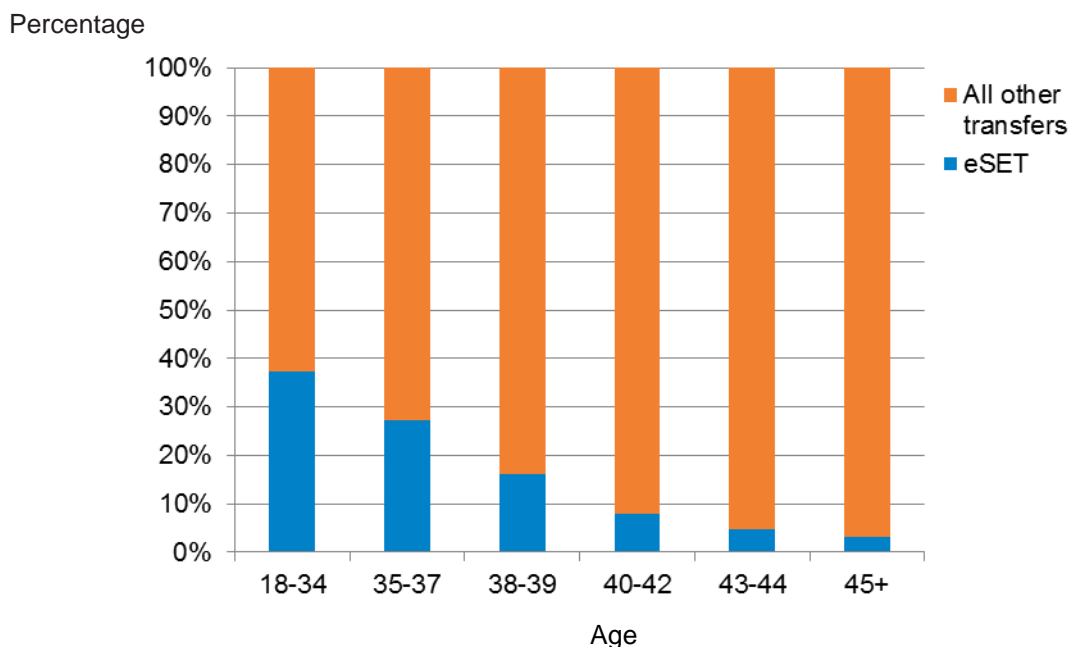
It is important to note that while both charts in figure 8 are the same size in order to show the differing proportions, the actual number of double embryo transfers (DETs) is much higher than the number of eSETs.

What proportion of transfers were eSET and how did this vary by patient age at the start of treatment?

The women who have the best chance of becoming pregnant are usually those aged 37 years and under who are on their first or second attempt at IVF. These are also the women who are most likely to decide to have only one embryo transferred.

Figure 9 shows that women aged between 18 and 34 years and 35 to 37 years have the highest proportion of eSETs and that this decreases with age. For more information on how eSET has changed recently, see figure 14.

Figure 9: Proportion of all embryo transfers performed that are eSET (2013)

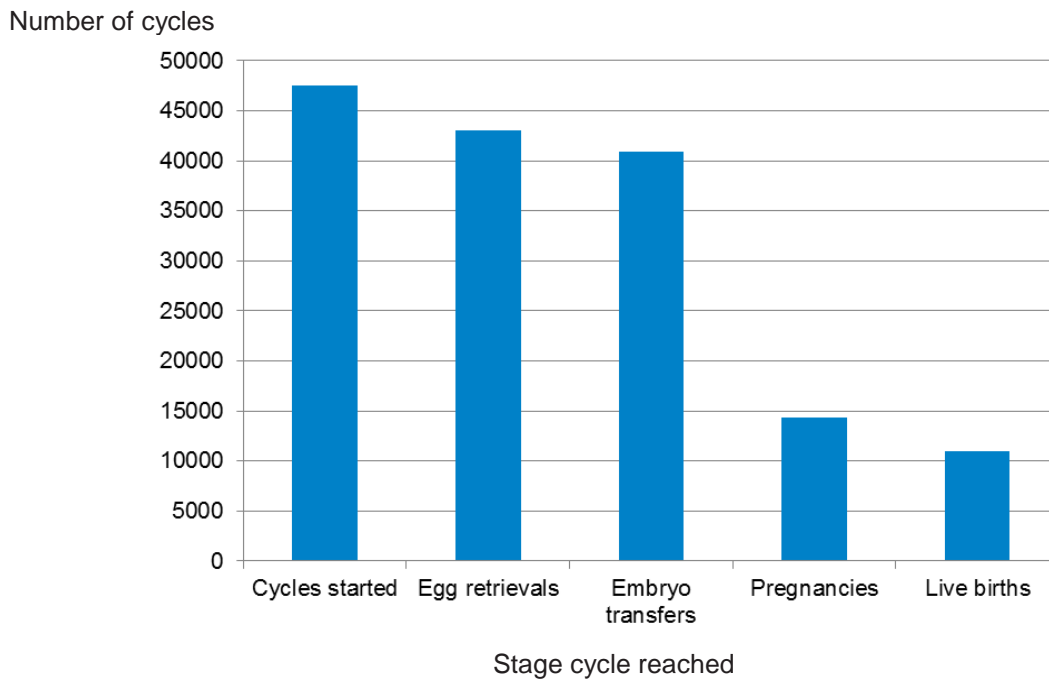


Why are some cycles abandoned before the cycle is complete?

For a variety of reasons, not all treatment cycles result in a successful egg collection and not all egg collections result in an embryo being transferred.

Figure 10 shows that around a quarter of cycles started resulted in a live birth. The data in figure 10 relate to fresh cycles started in 2012 with the intention of conceiving immediately.

Figure 10: Number of fresh IVF cycles started and the stage of treatment each reached (2012)



Of the cycles which failed before the egg retrieval stage in 2013, 35% did so because the woman’s ovaries did not respond well to stimulation. A further 5.4% failed at this stage because the woman’s ovaries over responded (this can be dangerous as it can lead to ovarian hyperstimulation syndrome (OHSS)). The remaining 59.6% failed for other unspecified reasons.

The most common specified reason a cycle failed between egg retrieval and embryo transfer was because of a risk of OHSS (38.7% of cycles abandoned in 2013 after egg retrieval but before transfer; 843 patients). This is a slight increase on that seen in 2012 (36.9%). It is important to note that a risk of OHSS is not the same as a diagnosis and identifying this can be a safe part of the clinical management of the woman’s treatment.

Key points

- The most common number of embryos transferred in each treatment cycle is still two, but only just, and the proportion of eSETs has increased so that over a quarter of transfers are electing to use only one embryo.
- The proportion of embryo transfers which are eSET decreases as women get older.
- Most embryos are transferred when they reach cleavage stage, except in eSET procedures when more are transferred at the blastocyst stage.

Results

In many of the tables in this section, the figures are aggregated because of the small numbers involved.

IVF cycles using a woman's own fresh own eggs

IVF cycles using a woman's own fresh eggs make up over three quarters of all IVF treatment cycles performed each year. The live birth figures presented here are from cycles started in 2012 and the pregnancy figures from cycles started in 2013.

How many pregnancies resulted from IVF treatment using a woman's own fresh eggs?

A total of 13,788 pregnancies were reported as a result of IVF treatment which started in 2012 and a total of 14,062 pregnancies were reported as a result of IVF treatment which started in 2013.

How is the pregnancy rate affected by the woman's age?

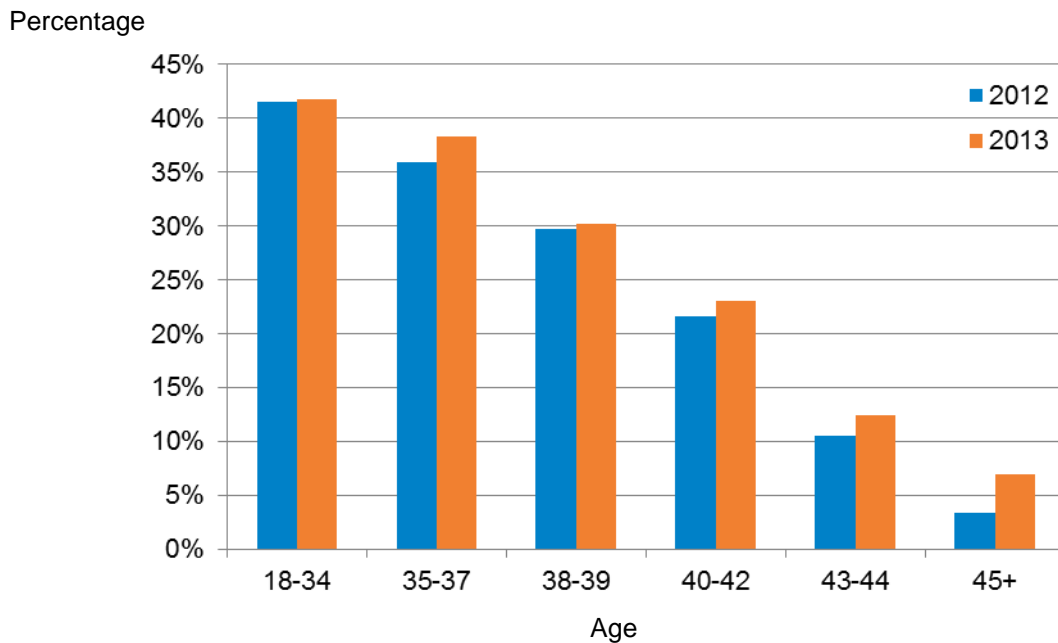
The likelihood of becoming pregnant following IVF treatment is strongly linked to the age of the woman being treated. On average, a woman aged 18 to 34 years is markedly more likely to conceive than a woman who is older.

The pregnancy rate for all women treated with embryos created from their own fresh eggs has increased slightly between 2012 and 2013 (table 8 and figure 11). The apparent large increase in the rate for women aged 45 and over is a result of the small number of patients in this group (for a more detailed explanation, please see the frequently asked question on page 10).

Table 8: Pregnancy rate (per embryo transfer) for IVF cycles using patients' fresh eggs (2012 and 2013)

Age	2012	2013
18–34 years	41.5%	41.8%
35–37 years	35.9%	38.3%
38–39 years	29.7%	30.2%
40–42 years	21.6%	23.1%
43–44 years	10.6%	12.4%
45+ years	3.4%	7.0%
All ages	34.6%	35.5%

Figure 11: Pregnancy rate (per embryo transfer) for patients receiving IVF treatment using their own fresh eggs (2012 and 2013)



Full live birth rates by age, treatment type and clinic are published regularly and in more detail on the Choose a Fertility Clinic section of the [HFEA website](#).

Does the pregnancy rate differ when one or two cleavage or blastocyst embryos are transferred?

Pregnancy rates tend to be higher when blastocysts are transferred, be it one (eSET) or two (DET).

Overall, there is a slightly higher pregnancy rate following eSET blastocyst transfer than following a double blastocyst transfer and there is almost no difference for women aged 37 years or younger. This should be considered together with the multiple pregnancy rate after blastocyst transfer (table 9), which is considerably higher after a double blastocyst transfer.

It must be noted that blastocyst transfer is not suitable for every woman undergoing fertility treatment and that women who have embryos cultured to blastocyst stage that opt for eSET may be those who are more likely to fall pregnant anyway. Figure 7 shows that younger women were more likely to have a blastocyst transfer.

Table 9: Pregnancy rate for the number and stage of embryos transferred (2013)

	eSET		DET	
	Cleavage	Blastocyst	Cleavage	Blastocyst
18–34 years	33.5%	48.9%	36.8%	50.7%
35–37 years	28.0%	47.1%	33.8%	48.6%
38–39 years	22.4%	38.8%	27.3%	42.9%
40–42 years			18.6%	37.0%
43–44 years	13.5%	30.7%	9.4%	25%
45+ years				
All ages	30.3%	47.1%	30.9%	46.0%

What is the multiple pregnancy rate for IVF treatment using a woman’s own fresh eggs?

A multiple pregnancy is a pregnancy where two or more fetuses develop at one time in the womb. The multiple pregnancy rate is the percentage of pregnancies confirmed by ultrasound which are multiple pregnancies.

The overall multiple pregnancy rate decreased between 2012 and 2013 (table 10), as it has done consistently since the introduction of the HFEA multiple births policy¹³. Now, only around one in six pregnancies after fresh, own egg IVF treatment are of more than one fetus. For a closer look at the multiple pregnancy and eSET rates since 2008, see ‘Short-term trends’ on pages 38-42 of this report.

Table 10: Multiple pregnancy rate for treatment cycles using patients’ fresh eggs (2012 and 2013)

Age	2012	2013
18–34 years	18.6%	16.1%
35–37 years	20.7%	17.8%
38–39 years	19.2%	17.1%

¹³ For information see www.hfea.gov.uk/Multiple-births-after-IVF.html or www.oneatatime.org.uk.

40–42 years	15.0%	15.2%
43+ years	10.0%	8.7%
All ages	18.8%	16.5%

Does the multiple pregnancy rate differ when one or two cleavage or blastocyst embryos are transferred?

Multiple pregnancies following single embryo transfer are rare and happen when the developing embryo splits in two, resulting in identical twins.

After the transfer of two cleavage-stage embryos, around a quarter (23.7%) of pregnancies confirmed by ultrasound were of two or more babies (table 11). The multiple pregnancy rate is affected by a woman's age and is higher in younger women. Table 11 also shows that transferring two blastocysts at a time carries an even higher risk of multiple pregnancy (35.9%), most noticeably in the youngest age group.

When eSET is performed, the chance of a multiple pregnancy is similar to that of all conceptions, which is 1.56%¹⁴.

Table 11: Multiple pregnancy rate for the number and stage of embryos transferred per treatment cycle using patients' fresh eggs (2012)

	Cleavage stage		Blastocyst stage	
	eSET	Double embryo transfer	eSET	Double embryo transfer
18–34 years		27.5%		43.8%
35–37 years		24.9%		35.1%
38–39 years	1.5%	17.3%	1.8%	28.4%
40+ years		13.4%		22.5%
All ages	1.5%	23.7%	1.8%	35.9%

¹⁴ Office for National Statistics. Statistical bulletin: births in England and Wales by characteristics of birth 2, 2013. Available at: http://www.ons.gov.uk/ons/dcp171778_384394.pdf. The ONS figures contain multiple births after fertility treatment, as well as natural conceptions, as they cover all recorded births in England and Wales.

What is the live birth rate for IVF treatment using a woman's own fresh eggs?

A total of 13,839 babies were born as a result of IVF treatment using a woman's fresh own eggs in 2012, including those born as multiples.

The live birth rate per cycle started has increased very slightly for women of all ages between 2011 and 2012 (table 12), after a similarly small decrease was seen between 2010 and 2011. The rate is now about the same as 2010 (25.6%).

Table 12: Live birth rate per treatment cycle started using patients' fresh eggs (2011 and 2012)

Age	2011	2012
18–34 years	32.2%	32.8%
35–37 years	27.3%	27.3%
38–39 years	19.9%	20.7%
40–42 years	13.3%	13.1%
43+ years	4.3%	4.4%
All ages	25.4%	25.8%

What is the multiple birth rate for IVF treatment using a woman's own fresh eggs?

As with the multiple pregnancy rate (Table 10), there was a continued decline in the multiple birth rate (table 13) between 2011 and 2012.

In 2008, more than one in four births to women¹⁵ aged 18 to 34 years were of more than one baby; by 2012, this had almost been reduced to just one in six (table 13). This is due to the HFEA setting a series of maximum multiple birth rate targets and clinics implementing focussed multiple birth reduction strategies.

Table 13: Multiple birth rate for treatment cycles using patients' fresh eggs (2011 and 2012)

Age	2011	2012
18–34 years	20.0%	16.9%

¹⁵ Improving outcomes for fertility patients: multiple births, HFEA, 2010
http://www.hfea.gov.uk/docs/2011-12-01_-_Multiple_Births_Publication_2011_-_Rationalising_Register_Data_-_FINAL_1.2.DOC.pdf Accessed 15/12/2014

35–37 years	18.2%	18.9%
38–39 years	17.8%	16.4%
40–42 years	13.7%	12.4%
43+ years	8.2%	6.8%
All ages	18.8%	16.9%

Key points

- The pregnancy rate has increased slightly between 2012 and 2013 and the multiple pregnancy rate has continued to decrease.
- After a double blastocyst transfer, a high percentage of pregnancies were of two or more fetuses, especially in younger women. By receiving eSET this chance is reduced to a level similar to natural conceptions.
- Between 2011 and 2012, the overall birth rate per cycle started has increased very slightly. During the same time period, the overall multiple birth rate has continued to decline. We will continue monitoring these figures.

IVF cycles using frozen embryos from a woman's own eggs

In some cases a woman will have good quality embryos left after her treatment cycle which can be frozen for later use. When she is ready, the embryo (or embryos) can be thawed and transferred into her uterus. These are termed 'frozen embryo transfers' (FETs), although embryos are always thawed before being transferred.

In 2013, 12,320 cycles using thawed frozen embryos created from the woman's own eggs were performed; an increase of 10.1% compared with 2012.

What is the pregnancy rate for IVF treatment using frozen embryos from a woman's own eggs?

The pregnancy rate after frozen embryo transfers is generally lower than when fresh embryos are transferred (table 8). However, between 2012 and 2013 the pregnancy rates following frozen embryo transfer have risen in all but one age group.

It is notable that the pregnancy rate does not drop as substantially in the older age groups as it does in the fresh cycles; indeed the pregnancy rate for FETs in women aged 45 and older is higher than for fresh cycles. This may be because the embryos transferred in the frozen

cycle were created using eggs collected some time ago, when the woman was herself younger.

Table 14: Pregnancy rate per frozen embryo transfer (2012 and 2013)

Age	2012	2013
18–34 years	30.0%	33.4%
35–37 years	28.3%	30.9%
38–39 years	25.0%	29.1%
40–42 years	22.7%	25.2%
43–44 years	14.2%	13.0%
45+ years	9.3%	13.0%
All ages	27.5%	30.6%

What is the multiple pregnancy rate for IVF treatment using frozen embryos from a woman’s own eggs?

The overall multiple pregnancy rate after frozen embryo transfer is now similar to that seen after fresh embryo transfer (table 10).

Pronounced differences between the individual age groups are likely to be due to the smaller number of outcomes in certain groups (table 15). For instance, the change to 17% in the aggregated 43+ age group in 2013 actually relates to fewer than 10 multiple pregnancies.

Table 15: Multiple pregnancy rate, per pregnancy (2012 and 2013)

Age	2012	2013
18–34 years	19.0%	17.0%
35–37 years	15.4%	15.7%
38–39 years	13.6%	13.9%
40–42 years		11.7%
43–44 years	11.2%	17.0%
45+ years		
All ages	16.5%	15.8%

What is the live birth rate for IVF treatment using frozen embryos from a woman's own eggs?

As noted earlier, women aged 18 to 34 years at the start of treatment are on average more likely to have a baby than those who are older. This has been seen in pregnancies and live births after fresh embryo transfers (tables 8 and 12) and in pregnancies after frozen embryo transfers (table 14).

Table 16 shows that the live birth rate after frozen embryo transfers also follows this trend. Overall there has been an increase in the live birth rate between 2011 and 2012, as there was between 2010 and 2011.

Table 16: Live birth rate per cycle started after frozen embryo transfer using patients' eggs (2011 and 2012)

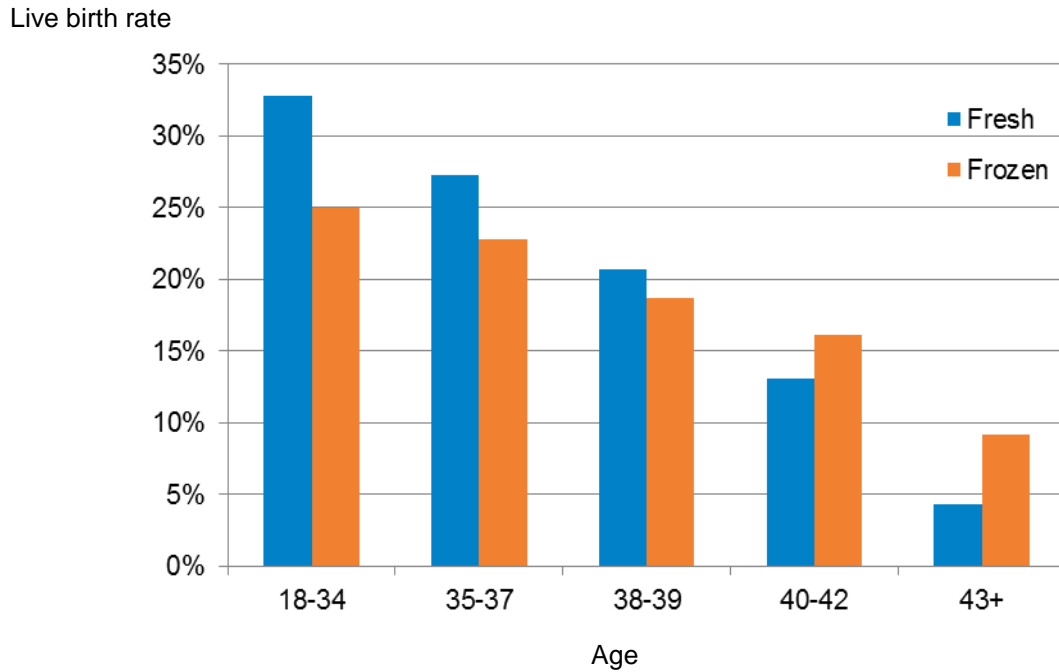
Age	2011	2012
18–34 years	22.1%	25.0%
35–37 years	20.7%	22.8%
38–39 years	18.2%	18.7%
40–42 years		16.1%
43–44 years	13.5%	9.2%
45+ years		
All ages	19.9%	22.0%

How does the live birth rate for frozen embryo transfers compare to that for fresh embryo transfers?

As previously noted, fresh embryo transfers tend to be more successful than frozen ones, with a higher overall chance of pregnancy and live births.

Comparing live birth rates directly between fresh and frozen embryo transfers (figure 12) shows that while this trend is true for the younger age groups (where most of the cycles are performed), the trend is reversed in the older age groups. As noted above, this may be because the embryos transferred in the frozen cycles were created using eggs collected some time ago when the women themselves were younger.

Figure 12: Live birth rate per treatment cycle started using fresh and frozen embryo transfers (2012)

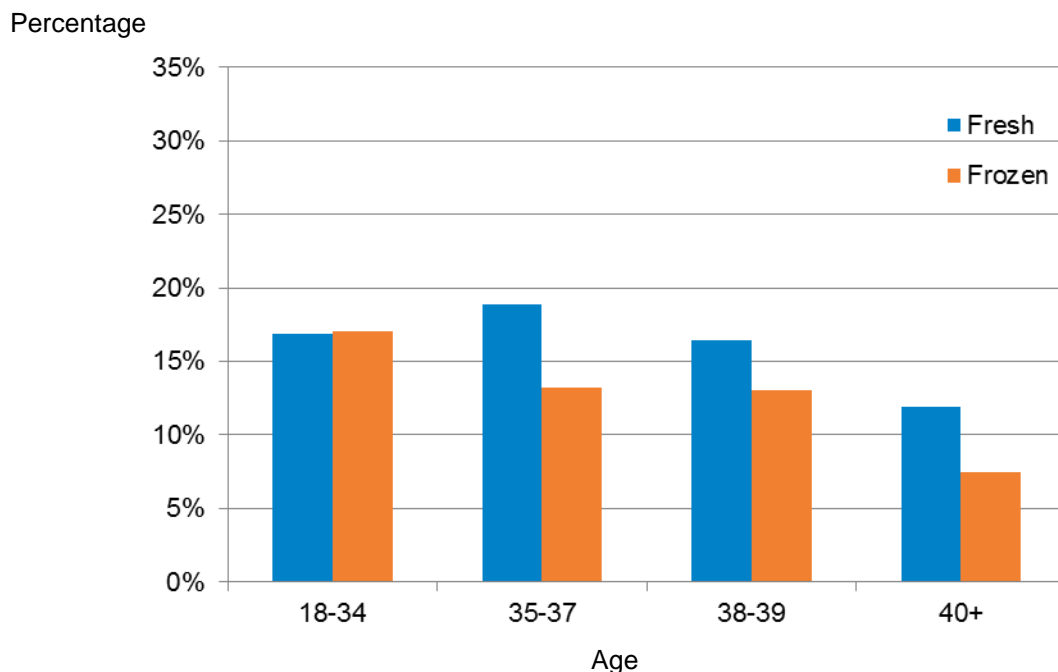


What is the multiple birth rate for IVF using frozen embryos from a woman's own eggs?

The multiple birth rate tends to be higher after fresh embryo transfers than after frozen ones, although this is not the case for women aged under 35 where the rates are similar (figure 13).

Overall, after frozen embryo transfers, the rate is 14.6% of all live births, compared with 16.9% after fresh embryo transfers (both 2012). In this graph, those aged 40 and over have been grouped together because of the small numbers involved.

Figure 13: Multiple birth rate per live birth, for frozen and fresh embryo transfers (2012)



Key points

- Frozen embryo transfers overall tend to be less successful than fresh ones, although this trend is reversed in women in the oldest age groups.
- The pregnancy and birth rates have increased overall for frozen embryo transfers.
- The multiple pregnancy and multiple birth rates have consistently decreased.

Cycles using donated eggs and sperm

It is important to note that because this section focuses on live birth results, rather than pregnancies, the data is from 2012.

What is the live birth rate for IVF using donated sperm?

A total of 2,372 cycles of fresh own-egg IVF were performed in 2012 using donated sperm. This resulted in 654 births; the overall live birth rate is therefore 27.6%, slightly lower than we reported for 2012 (29.0%).

Table 17: Live birth rate per IVF treatment cycle started using patients' fresh eggs and donor sperm (2012)

Age	2011	2012
18–34 years	40.7%	36.8%
35–37 years	30.7%	31.7%
38–39 years	26.9%	27.8%
40–42 years	16.6%	16.7%
43+ years	6.5%	5.1%
All ages	29.0%	27.6%

What is the live birth rate for IVF using donated eggs?

A total of 1,704 cycles of fresh donor egg IVF were performed in 2012 using partner sperm. This resulted in 632 births; the overall live birth rate was therefore 37.1%, an increase on the rate seen in 2011 (32.8%) and 2010 (32.4%).

Table 18: Live birth rate per IVF treatment cycle started using fresh donated eggs and partner sperm (2010–2012)

Age	2010	2011	2012
18–34 years	31.8%	31.7%	35.1%
35–37 years	32.2%	33.0%	40.8%
38–39 years	38.9%	32.5%	39.3%
40–42 years	32.2%	32.1%	40.3%
43–44 years	31.7%	33.6%	33.0%
45+ years	30.4%	33.3%	35.3%
All ages	32.4%	32.8%	37.1%

What is the live birth rate for egg share cycles?

In 2012, 784 women donated eggs as part of an egg sharing cycle, 864 of which were performed. In the women donating eggs, this resulted in 326 live births (a live birth rate per cycle started of 37.7%), including 58 multiple births.

A total of 800 women received eggs as part of an egg sharing arrangement, in 821 cycles. This resulted in 296 live births (a live birth rate per cycle started of 36.1%), including 54 multiple births.

What is the live birth rate for IVF cycles using donated eggs and donated sperm?

As noted on page 19, some cycles use donated eggs and donated sperm, or donated embryos. We also noted that many embryos are donated frozen, so the following results are for both fresh and frozen cycles. Further data can be found in the accompanying datasheet.

Table 19: Live birth rate per IVF treatment cycle started using donated eggs and donated sperm (2010–2012)

Age	2010	2011	2012
18–34 years	22.2%	36.8%	34.4%
35–39 years	19.5%	18.6%	30.4%
40–42 years	29.9%	29.0%	21.1%
43–44 years	20.0%	28.8%	28.9%
45+ years	18.1%		
All ages	21.9%	29.5%	29.1%

What is the live birth rate for DI?

A total of 4,474 cycles of DI were performed in 2012. This resulted in 561 births.

Some women receive fertility drugs to boost egg production before the sperm is transferred and these stimulated cycles are presented separately from unstimulated cycles (where there is no treatment with fertility drugs before insemination), as the success rates are quite different.

The overall live birth rates (13.8% for stimulated DI and 11.4% for unstimulated DI) are, respectively, slightly lower than we reported for 2011 (14.8%) and around the same (11.3%).

Table 20: Live birth rate per DI cycle started (2012)

Age	Stimulated	Unstimulated
18–34 years	19.3%	14.7%
35–37 years	13.6%	12.8%
38–39 years	13.0%	6.6%
40+ years	4.0%	3.3%
All ages	13.8%	11.4%

How many couples in same sex partnerships had treatment and what were the live birth rates?

A total of 902 cycles of IVF were performed in women who registered with a female partner in 2012; 136 more than in 2011 (a 17.8% increase). This resulted in 268 live births. The live birth rate per cycle started was therefore 29.7% – a slight increase on 2011 (29.1%).

A total of 1,458 cycles of DI were performed in women who registered with a female partner in 2012; 187 more than in 2011 (a 14.7% increase). This resulted in 192 live births. The live birth rate per cycle started was therefore 13.2%; an increase on 2011 (11.6%).

Key points

- The number of treatment cycles using donated sperm (both IVF and DI) has increased substantially between 2011 and 2012.
- Stimulated DI cycles tend to have a higher success rate than unstimulated DI cycles.
- The number of same sex female couples receiving treatment (IVF and DI) has increased, but this is still a small percentage of the overall number of cycles performed.

Trends

Short-term trends

In January 2009, we introduced a policy to promote elective single embryo transfer (eSET) and minimise the chance of multiple births from IVF treatment. All clinics must have their own multiple births minimisation strategy, which sets out how they will lower their multiple birth rate to within a maximum rate set by the HFEA.

We have lowered the maximum target multiple birth rate each year, after careful evaluation, and it currently stands at 10%. Although no target was in place in 2008, that year was used as a benchmark and is therefore used as the start of the shorter-term trend analysis presented here.

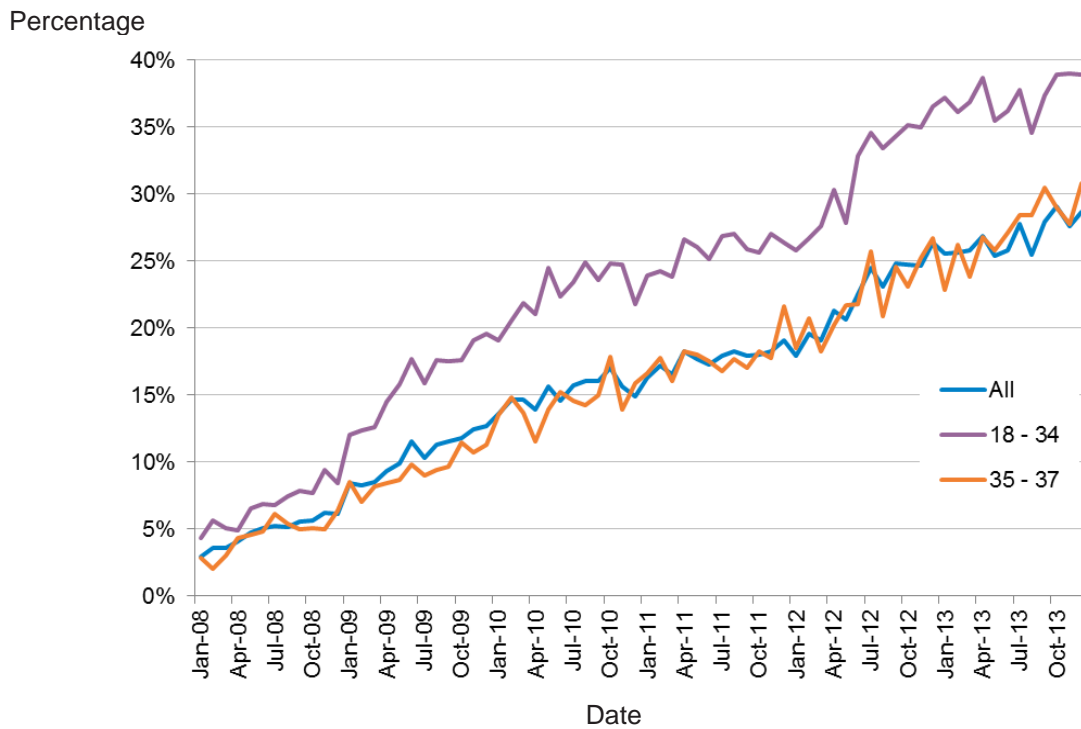
How has the eSET rate changed since 2008?

Since January 2008, the proportion of eSETs performed has increased substantially across the sector. In 2008, 39,014 embryo transfers were performed, of which 1,920 (4.9%) were eSET. In 2013, 51,144 embryo transfers were performed, of which 13,706 (26.8%) were eSET.

As noted earlier, this increase has been greatest in younger women, particularly those aged 18 to 34 years. Professional bodies recommend that women aged 37 years or under at the start of treatment (amongst other factors) are best suited to receive eSET.¹⁶

¹⁶ Cutting, R, et al. Elective single embryo transfer: guidelines for practice. British Fertility Society and Association of Clinical Embryologists. Human Fertility 2008; 11: 131-146.

Figure 14: Percentage of eSETs (2008–2013)



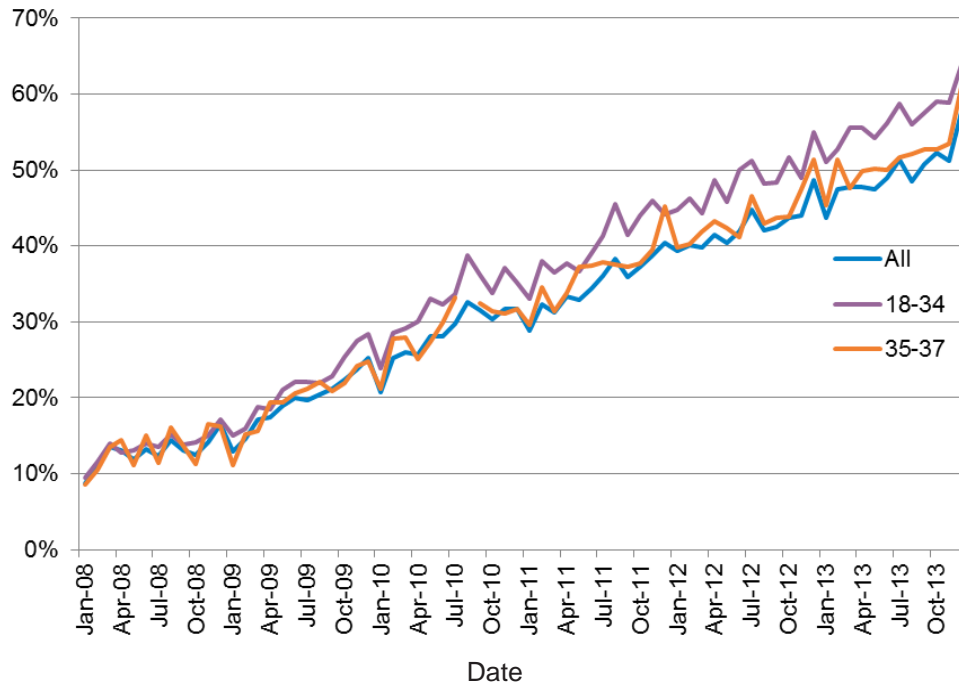
How has the proportion of blastocyst transfers changed since 2008?

Since 2008 there has been a steady increase in the proportion of embryos transferred at the blastocyst stage.

Figure 15 shows the percentage of all embryos transferred at blastocyst stage and how this has changed, month by month. This has increased from 8.7% of all embryo transfers in January 2008, to over half, 57.7%, in December 2013.

Figure 15: Percentage of embryo transfers which were blastocyst (2008–2013)

Percentage

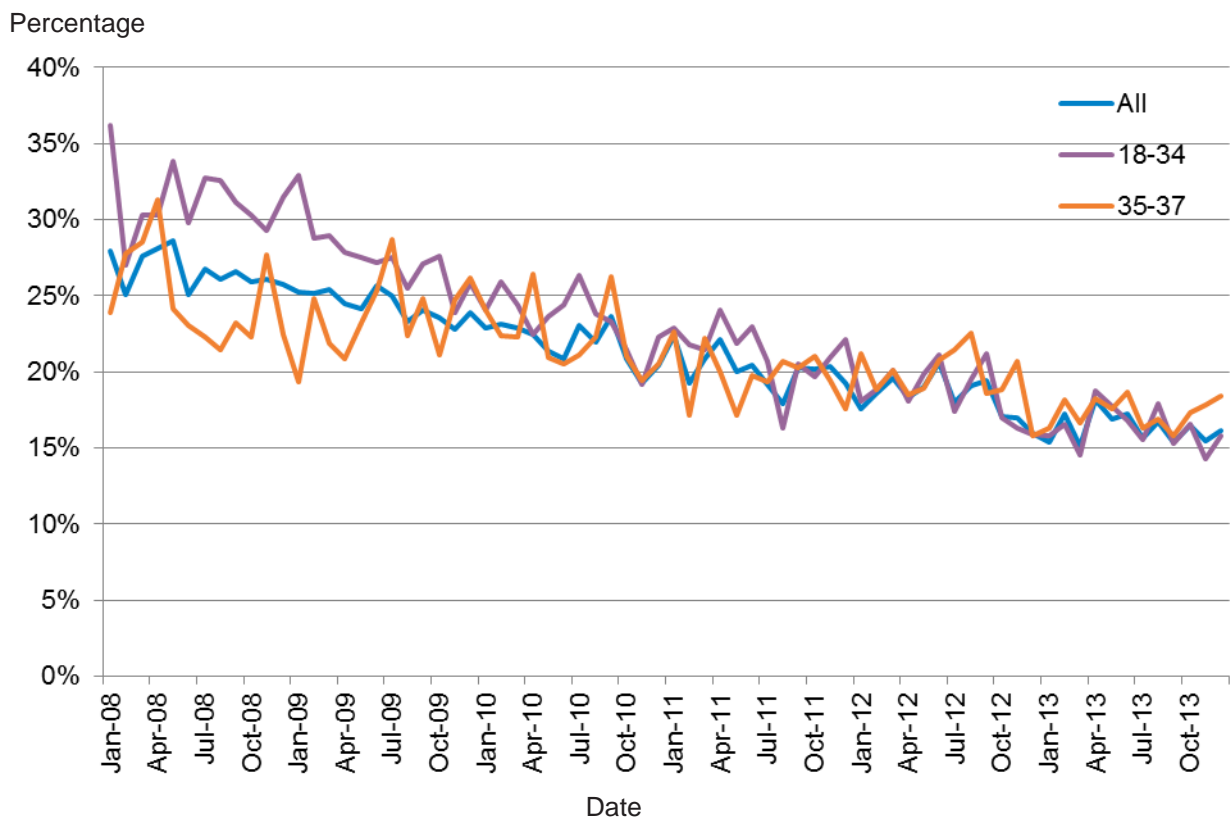


How has the multiple pregnancy rate changed since 2008?

A multiple pregnancy is a pregnancy where two or more fetuses develop at one time in the womb. The multiple pregnancy rate is the percentage of pregnancies confirmed by ultrasound where there are multiple pregnancies.

Figure 16 shows that the multiple pregnancy rate has decreased markedly between 2008 and the end of 2013. The decrease is most pronounced in women aged 18 to 34 years, who saw the greatest increase in eSET (figure 15) during this time. Variability can be seen from month to month. However, overall the trend is downwards, going from 26.6% in 2008 to 16.3% in 2013.

Figure 16: Monthly multiple pregnancy rates, per pregnancy (2008–2013)



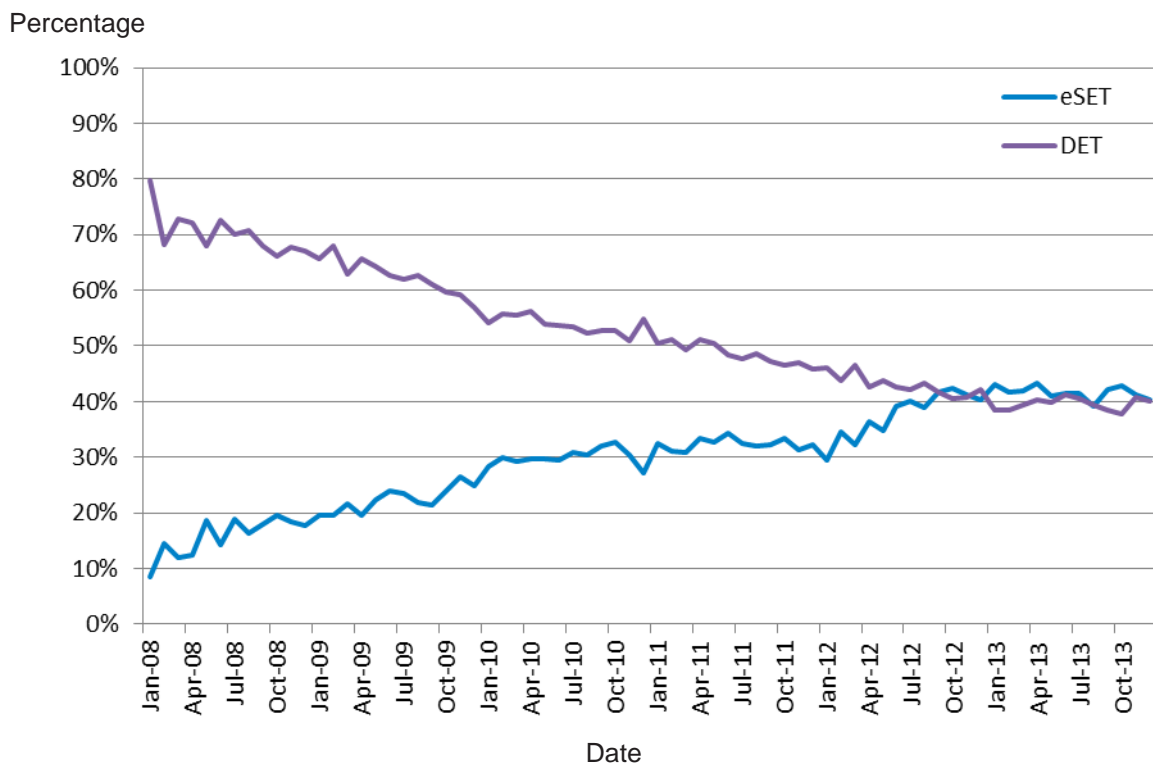
How has the proportion of blastocyst transfers which are single or double changed since January 2008?

When clinics in the UK were introducing blastocyst transfer in early 2008, they tended to transfer two blastocysts at a time.

Figure 17 shows that as the technique has become more widespread, the proportion of transfers which are eSET has increased and the proportion which are double embryo transfer (DET) has decreased.

It is important to note with this graph that, while the proportion of double blastocyst transfers is decreasing, the absolute number continues to increase. Absolute figures can be found in this report’s accompanying data sheet.

Figure 17: Proportion of fresh blastocyst transfers (eSET and DET) 2008–2013



Long-term trends

We have been collecting information about licensed fertility treatments performed in the UK since 1991. As a result, we are able to look at some long-term trends in the sector.

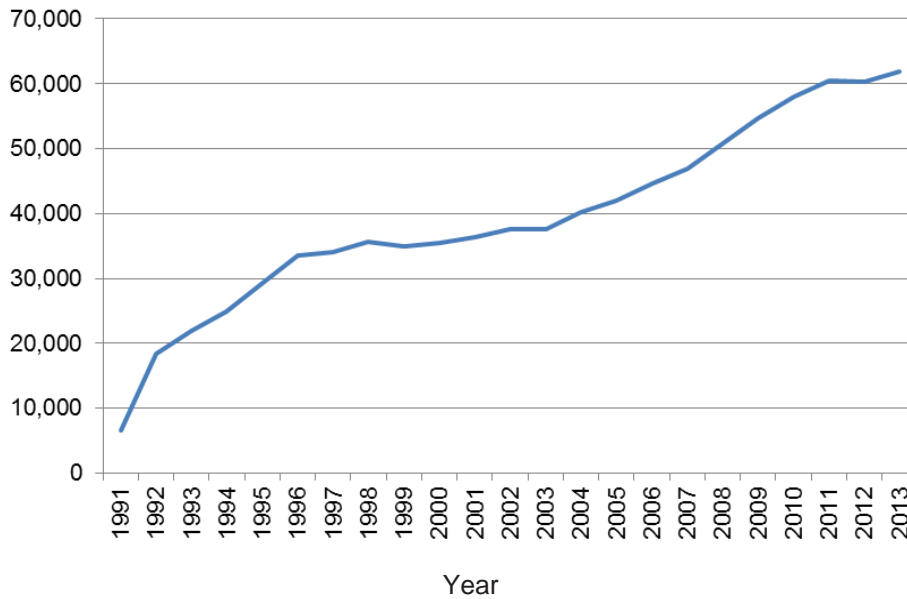
How has the number of cycles performed each year since 1991 changed?

The number of IVF cycles performed every year in the UK has increased almost every year since 1991 (this includes ICSI and earlier micromanipulation techniques¹⁷). There have been some periods where the number has declined, or the rate of increase slowed, but the general trend has been upwards.

¹⁷ Such as sub zonal insemination (SUZI).

Figure 18: Number of IVF cycles performed each year (1991–2013)

Number of cycles

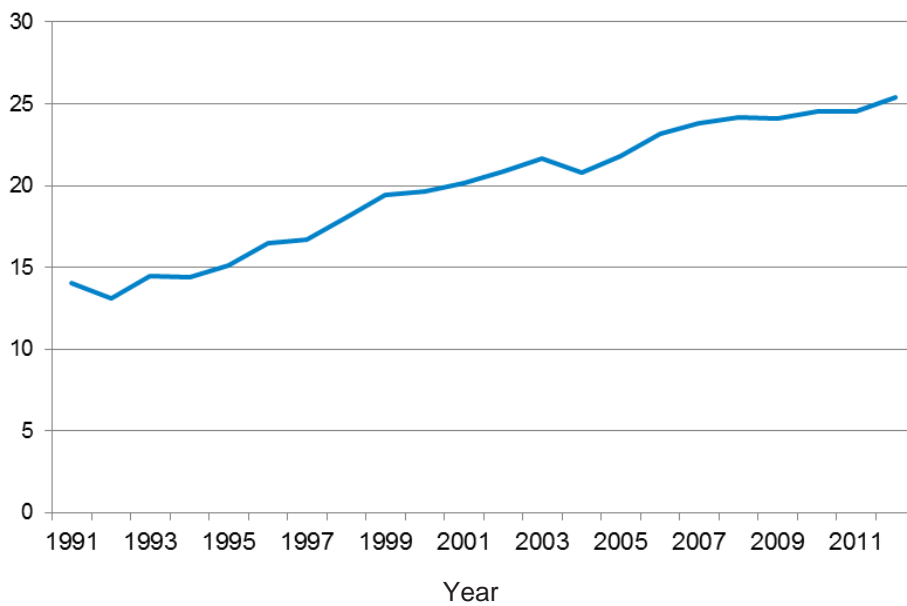


How has the live birth rate for IVF cycles changed since 1991?

The live birth rate has increased from 14.0% in 1991 to 25.4% in 2012. Some years have shown a steadying off and even a decline. We have seen a slight decline in some years, but as with the number of cycles performed each year, the general trend has been up, reflecting improvements in clinical practice.

Figure 19: Live birth rate per cycle started (1991–2012)

Live birth rate



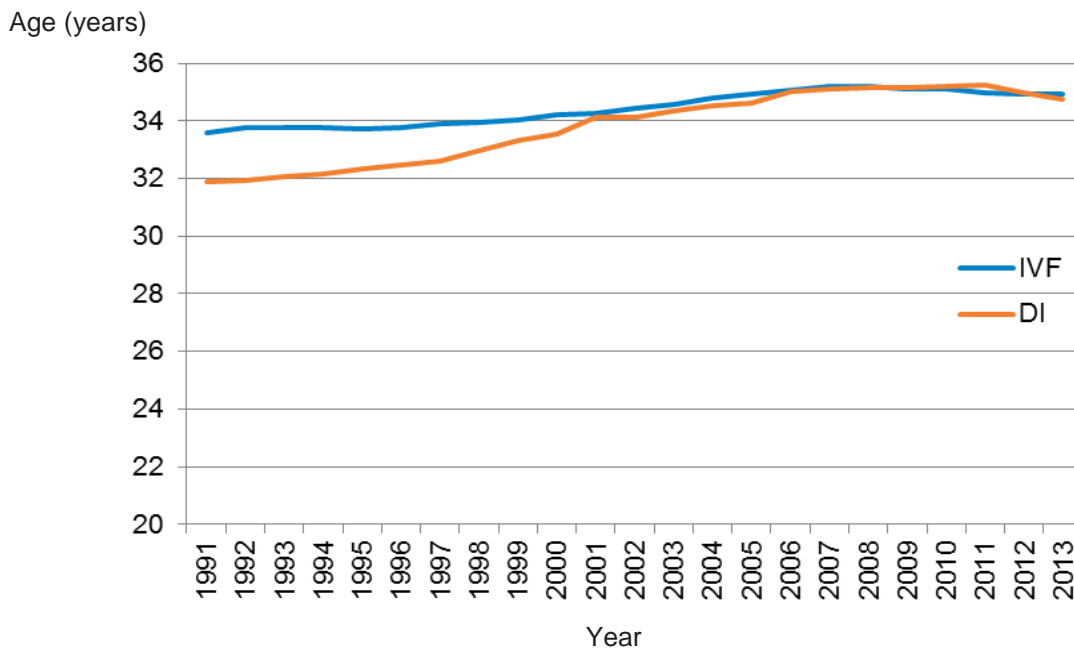
How has the age of the women having fertility treatment changed since 1991?

There is a general trend in the UK and elsewhere for women to have children slightly later in life¹⁸ and the long-term trend in the age of women seeking fertility treatment reflects this.

Since 1991, the average (mean) age of women having fertility treatment has increased by about one and a half years for IVF, (33.6 to 34.9 years) and by three years for DI (31.9 to 34.8 years). However, since around 2006, the average age for women having either IVF or DI treatment has remained steady, as shown in figure 20.

For full mean and median figures, download this report's accompanying data sheet from our [website](#).

Figure 20: Average age of women undergoing IVF and DI treatment using fresh eggs (1991–2013)

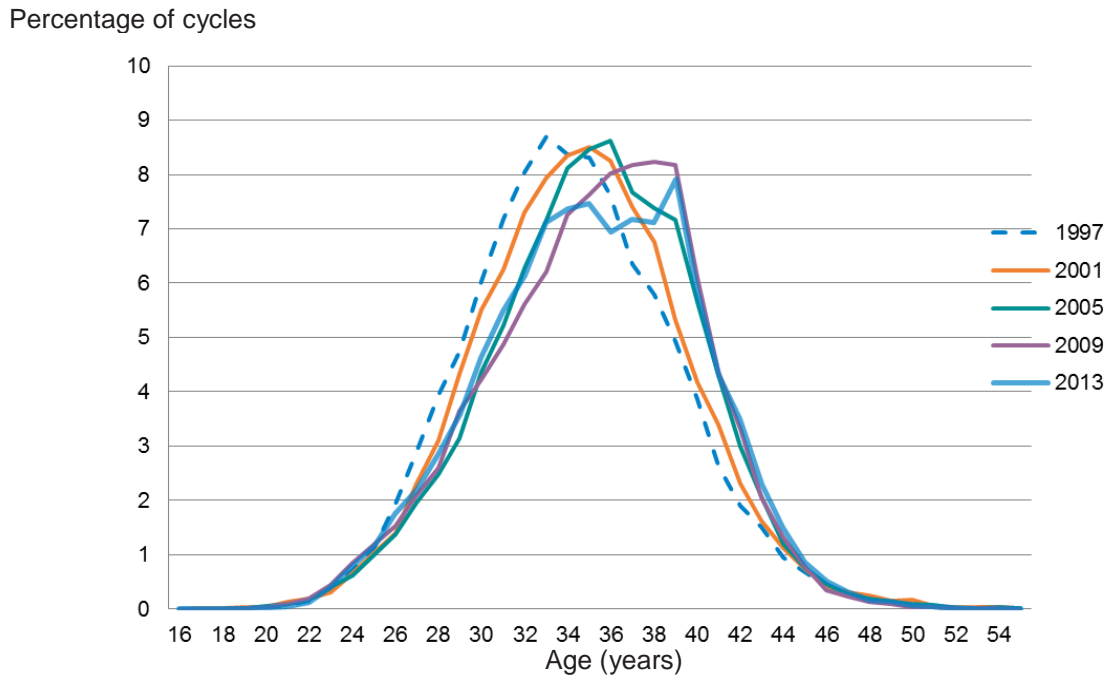


In our last publication, we provided a figure similar to figure 21 showing the age distribution of women having treatment between 1991 and 2011. As the average age of women having treatment has increased, the peak of the curve (showing the greatest number of cycles performed) has moved to the right over time.

In the last report we also noted a spike at age 39 in 2010. In the figure below we present the updated figures to 2013 and we can see the same trend.

¹⁸ Office for National Statistics. Statistical bulletin for births and deaths in England and Wales 2013. http://www.ons.gov.uk/ons/dcp171778_371129.pdf

Figure 21: Percentage of cycles started by patients' age at start of treatment (1997–2013)



How many babies in the UK have been born as a result of IVF treatment since 1991?

Since the first IVF baby was born in 1978, over 5million babies have been born worldwide after IVF treatment¹⁹. In the UK, 221,555 babies were born after IVF treatment between 1991 and 2012.

How has the proportion of babies born following IVF changed since 1992?

Since 1992, the number of babies born every year in the UK has fluctuated. The number declined through the 1990s, then increased sharply in the 2000s²⁰, with a continued increase in 2012.

During this time, the proportion of those babies born who were IVF babies has steadily increased. In 1992, 0.3% of all babies were born as a result of IVF treatment; in 2002 this had reached 1.4%. In 2012, 2.2% of all babies born in the UK were conceived as a result of IVF treatment.

¹⁹ European Society of Human Reproduction and Embryology. ART factsheet, 2014. Available at: www.eshre.eu/ESHRE/English/Guidelines-Legal/ART-fact-sheet/page.aspx/1061 (accessed 9 December 2014).

²⁰ Office for National Statistics (England and Wales): Births summary tables, 2011. Available at: www.ons.gov.uk/ons/rel/vsob1/birth-summary-tables--england-and-wales/2011--final-/index.html; General Register Office for Scotland (Scotland): available at: www.gro-scotland.gov.uk/statistics/theme/vital-events/births/time-series.html; NISRA (Northern Ireland): Live births, 1887 to 2010. Available at: www.nisra.gov.uk/demography/default.asp8.htm.

Key points

- Between 2008 and 2012, significant changes have been made in clinical practice. More embryos are being transferred at the blastocyst stage as part of an active decision to only transfer one embryo even if more are available. As a result, multiple pregnancy rates have decreased in the same period.
- The number of IVF cycles performed each year has increased steadily since 1991.
- The age of women seeking fertility treatment increased after 1991, reflecting the wider trend in society for people to start their families later, but this has remained steady over the last five years.
- The birth rate after IVF has increased from 14% in 1991, to 25% in 2012.
- In 2012, 2.2% of all the babies born in the UK had been conceived through IVF treatment.