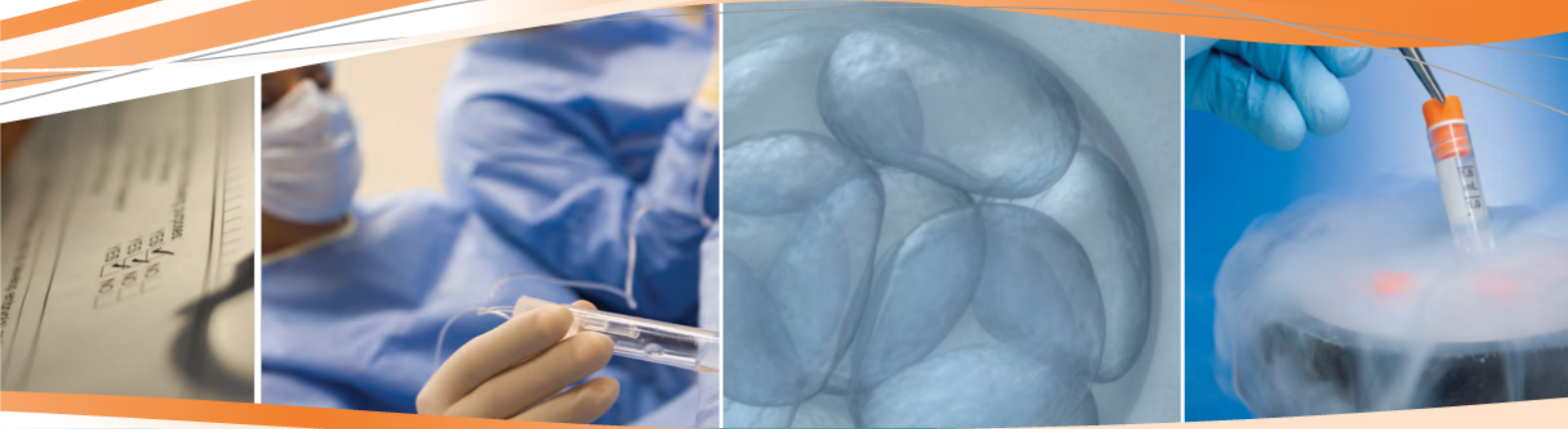


# Fertility treatment in 2012



## trends and figures

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## Chair's Foreword

This is the third report of its kind published by the Human Fertilisation and Embryology Authority, as part of our commitment to making the best possible use of the information we collect.

Our database – known as the Register – holds detailed information about all UK fertility treatments and any birth associated with them, dating back to 1991. Its most important purpose is as a source of information for those affected by donor conception: egg and sperm donors, patients receiving donor conception treatment and the children they have as a result of that treatment. Donors can find out how many children have been born as a result of their donation; parents can see how many half siblings their own children have and, importantly, donor-conceived adults can find out identifying information about their donor.



But the Register has many other uses. Because it contains information about all treatment taking place in UK fertility clinics, it is a rich resource for prospective patients when researching clinics and the treatment they provide. Our online service, 'Choose a Fertility Clinic' provides information about treatments and their outcomes in each licensed fertility clinic. Updated every six months, it enables patients to find the service which is right for them. As part of our ambition to enhance our information and services for patients, we will be improving Choose a Fertility Clinic over the coming year, to make it more responsive to patients' information needs at this crucial stage of their fertility treatment journey.

Besides supporting current patients, the Register helps future patients and their children too. Through a rigorous application process, we give researchers in the UK through access to Register data in order to study the impact of fertility treatment on mothers and babies, linking to other sets of data to provide a greater understanding of fertility treatment to the benefit of future patients.

This annual report provides national insights for a range of interested parties: patients and donors, professionals working in the fertility sector and the wider public. It shows the latest results across all licensed clinics and draws out longer term trends. It shows a sector which is thriving, each year providing more treatment to a wider group of people in a safe and ethical environment.

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

**Sally Cheshire**  
Chair

## Summary

The Human Fertilisation and Embryology Authority (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 the HFEA Register and, each year, around 60,000 new treatment cycles are recorded and validated.

The HFEA is committed to being a proactive information provider and therefore aims to publish this report annually. This report presents information about treatment cycles started in 2011, their outcomes in 2012, and how these coincide with short and long term trends overall.

The overall pregnancy and live birth rates have increased at a time of notable changes to clinical practice: increasing numbers of embryo transfers are of blastocyst stage embryos, and more women are opting to have only one embryo transferred at a time to reduce their risk of a multiple pregnancy. 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) continues to grow, although the rate of growth in IVF cycles has slowed, whilst the rate of growth in DI cycles has increased.
- Two thirds of women having treatment were aged 37 and under.
- There has been an increase in the number of IVF cycles using donor sperm.
- Patients over 45 years old are now using donor eggs more often than their own.
- The most common number of embryos transferred in each treatment cycle is still two.
- The proportion of embryo transfers which are eSET decreases as women's age increases.
- Most embryos are transferred when they reach cleavage stage, except in eSET procedures, when more are transferred at the blastocyst stage.
- The pregnancy rate has remained broadly steady between 2010 and 2012 and the multiple pregnancy rate has decreased.
- After a double blastocyst transfer, a much higher percentage of pregnancies were of two or more fetuses, approaching 50% in women aged 18 to 34 years. By receiving eSET this chance is reduced to a level similar to natural conceptions.
- Between 2010 and 2011, the overall live birth rate per cycle started has decreased very slightly. During the same time period, the overall multiple birth rate has continued to decline.
- 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 number of treatment cycles using donated sperm (both IVF and DI) has increased between 2010 and 2011.
- Stimulated DI cycles tend to have a higher success rate than unstimulated DI.
- The number of same-sex female couples receiving treatment (whether IVF or DI) has significantly increased.
- 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 couples to start their families later, but has remained steady over the last five years.
- The live birth rate after IVF has increased from 14% in 1991, to 25% in 2011.
- In 2011, more than 2% of all the babies born in the UK had been conceived through IVF treatment.

# Background

## About this report

This report presents key information about the patients treated, the different treatments used and the pregnancy rates for treatment cycles carried out in 2012. We also report on the live birth rates for treatment cycles carried out in 2011.

## 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 will 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 5 November 2013. 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.

We are currently completing an extensive review of the information that has been provided to us by licensed clinics about treatments using donor gametes. These treatments are often complicated to report and while the HFEA has always been confident that the relevant gamete provider can be identified for individual treatments, we are only now able to analyse our entire dataset to do an overview analysis of trends in donation. This analysis is underway and a separate report of the findings will be published in 2014.

## Revisions policy

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

## Next publication date

Autumn 2014



## 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](http://www.hfea.gov.uk)).

## Contact us regarding this publication

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## Acronyms, abbreviations and glossary of frequently used terms

Our website ([www.hfea.gov.uk](http://www.hfea.gov.uk)) provides information about individual clinics, the fertility treatments available and a full glossary of terms.

Term/Acronym	Meaning
<b>Donor insemination (DI)</b>	Broad term covering fertility treatment using donor sperm where fertilisation takes place inside a woman's body. Donor sperm is introduced to a woman's uterus (IUI), cervix (ICI), or vagina (IVI).
<b>Double embryo transfer (DET)</b>	When two embryos are transferred to a woman's uterus at the same time.
<b>Elective single embryo transfer (eSET)</b>	When a woman opts to reduce the risk of multiple births by having one embryo transferred in a treatment cycle despite having more available.
<b>In vitro fertilisation (IVF)</b>	Where a woman's eggs and a man's sperm are collected and placed together in a laboratory to achieve fertilisation outside the body.
<b>Intra-cytoplasmic sperm injection (ICSI)</b>	A variation of IVF in which a single sperm is injected directly into a woman's egg.
<b>Intra uterine insemination (IUI)</b>	A form of DI where a man's sperm is placed directly into a woman's uterus
<b>Live birth</b>	A birth event of at least one baby showing some signs of life.
<b>Live birth rate (LBR)</b>	The percentage of cycles started in one year which resulted in a live birth.
<b>Multiple birth</b>	A birth event where more than one live baby is born.
<b>Multiple birth rate (MBR)</b>	The percentage of live births that were of more than one live baby.
<b>Pre-implantation genetic diagnosis (PGD)</b>	Used in conjunction with IVF, where one or two cells are removed from an embryo to be tested for a specific hereditary disorder. Unaffected embryos are selected and transferred.

## Frequently asked questions

### What is infertility?

Infertility has been defined as a failure to conceive after regular unprotected sexual intercourse for one to two years<sup>1</sup>. 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 for specialist consultation to discuss the options for attempting conception, further assessment and appropriate treatment where the woman 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 do so within two years<sup>2</sup>.

### 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 will be transferred to the woman's body.

A full list of treatments available and descriptions of what they involve can be found on our website ([www.hfea.gov.uk](http://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.

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<sup>1</sup> 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>

<sup>2</sup> *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 get your data?

The HFEA collects data about all the licensed treatments performed each year in the UK fertility sector. The data is supplied by the clinics performing the treatments and they are responsible for making sure the data is accurate.

### 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:

- **Live birth rates per cycle started:** The percentage of cycles started in one year that result in a live birth<sup>3</sup>.
- **Pregnancy rates per embryo transfer:** The percentage of embryo transfer procedures that result in a woman becoming pregnant (as confirmed by ultrasound)<sup>4</sup>. 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<sup>5</sup>.
- **Multiple birth rate:** The percentage of all live births that resulted in the birth of more than one live baby<sup>6</sup>.

### What outcomes are included in your results data?

Our data is presented by the year the treatment cycle started, not the year a consequent 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.

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<sup>3</sup> To calculate this divide the number of live birth events 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.

<sup>4</sup> To calculate this, divide the number of pregnancies (confirmed by ultrasound) by the number of embryo transfers. This is multiplied by 100 to give a percentage.

<sup>5</sup> To calculate this 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.

<sup>6</sup> To calculate this divide the number of live birth events 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.

There are different ways to account for the outcomes of treatment. Our live birth data counts all birth events 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 birth events where two or more babies were born alive, including those where one or more of the babies die within the first month of life.

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 still born baby would not be 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 2011 live 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 decide which clinic best suits them.

### **Why don't you produce clinic league tables?**

We do not think it's meaningful to directly compare clinics' success rates or create 'league tables' of clinics' performance because:

- Clinics treat patients with different conditions and this will affect the average success rates we show for clinics
- Most clinics carry out too few cycles each year to reliably predict a patient's future chance of success
- The success rates are from about two years ago and may not be a good indication of success rates at the particular clinic today
- The majority of clinics' outcomes are around the national average

### **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 variable, or 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 fewer woman in each age group has a live birth, the percentages will 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.

### Can I access your data?

The data which forms this publication can be downloaded as a spread sheet from our website ([www.hfea.gov.uk](http://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 spread sheet 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 Debra Bloor ([debra.bloor@hfea.gov.uk](mailto:debra.bloor@hfea.gov.uk)) for more information.

## Section 1: Overview

### How many fertility clinics were there in the UK in 2012?

In 2012, 77 licensed clinics performed IVF treatment and 72 performed DI treatment<sup>7</sup>. As in previous years, the largest number of clinics are based in London (Table 1).

The number of women treated in each region ranged from 1,254 in Wales to 15,008 in London. This figure is based on the location of the clinic, rather than where women reside as patients sometimes travel to different regions for treatment – particularly London.

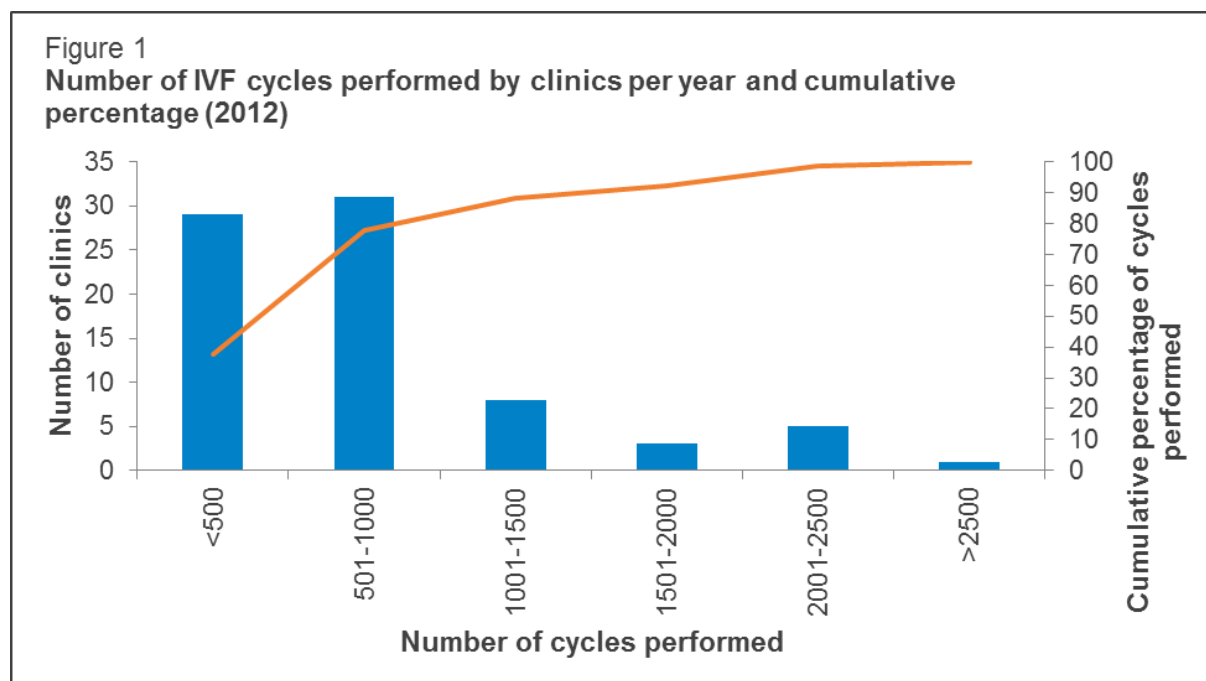
Table 1  
Number women receiving fertility treatment at clinics performing IVF and DI in the UK (2012)

Region	Clinics performing IVF	Clinics performing DI	Women treated <sup>8</sup>
North East	5	5	1,891
North West	4	4	4,862
Yorkshire & Humber	4	4	3,146
East Midlands	4	4	3,022
West Midlands	7	7	3,313
East of England	5	5	3,024
London	18	16	15,008
South East	11	9	5,453
South West	6	6	2,438
Northern Ireland	2	2	1,551
Scotland	7	6	3,529
Wales	4	4	1,254

<sup>7</sup> This does not include clinics only providing intra uterine insemination (IUI) with partner sperm.

<sup>8</sup> 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 2012, ranging from fewer than 50 IVF cycles in some clinics to over 2,000 IVF cycles in others (Figure 1). Around half of the IVF cycles performed in the UK were performed in around a quarter of the clinics.



### How many women received fertility treatment?

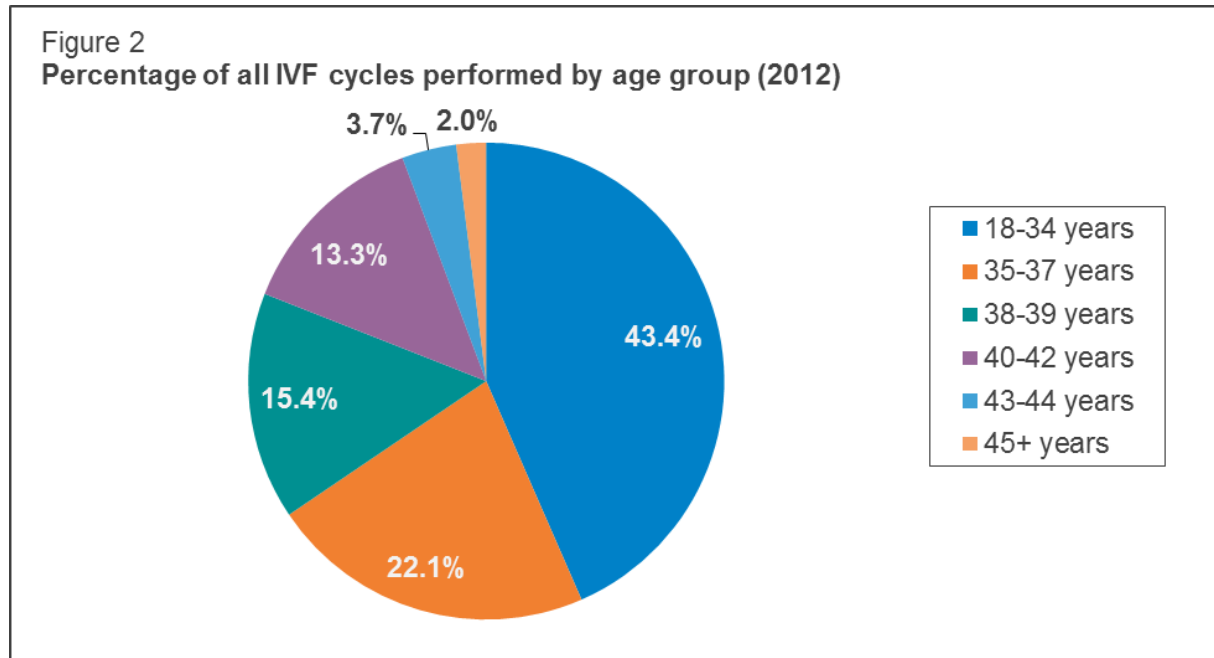
In 2012, 47,422 women had a total of 62,155 cycles of IVF or ICSI and 2,265 women had a total of 4,452 cycles of DI. In 2011, 61,726 cycles of IVF or ICSI and 4,091 of DI were performed. Therefore, 2012 saw a very small increase of 0.69% in the number of treatment cycles and an increase of 8.8% in the number of DI cycles, respectively.

Of the women who had IVF or ICSI treatment in 2012:

- The vast majority, 44,950 (94.8%), started treatment to try to conceive a baby during that cycle of treatment. This is very slightly less than the number we reported for 2011 (95.8%).
- 3.5% were part of an egg sharing agreement, or had IVF or ICSI to produce eggs or embryos for donation.
- 1.7% had treatment but did not have an embryo transfer straight away, instead storing their eggs or embryos for later use. This might have happened because the woman was not well enough for the embryos to be transferred immediately or because treatment was carried out before the woman had cancer treatment which might affect her fertility. Very few women have treatment specifically to store eggs or embryos for later use without an acute medical reason. The proportion of women who did not have an embryo transfer straight away is very slightly more than we reported for 2011 (1.0%).

## How old were the women receiving treatment?

Almost two thirds of women who received IVF treatment in 2012 were aged 37 years and under (Figure 2). There has been no change in the age distribution of women receiving IVF treatment since 2011.



Women having IVF treatment were on average 35 years old and the average length of time patients reported trying to conceive was 4.7 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 3.8 years (range 0 to 20 years).

For information on how the ages of women receiving treatment has changed over time, please see Figures 20 and 21.

## Who funded the treatment?

A minority, four in 10 (40%), of IVF treatment cycles were funded by the NHS in 2012. The majority, six in 10 (60%), were privately funded. This is a similar proportion to fertility treatment started in 2011, where the figures were 40.3% and 59.7% for NHS and privately funded cycles, respectively.

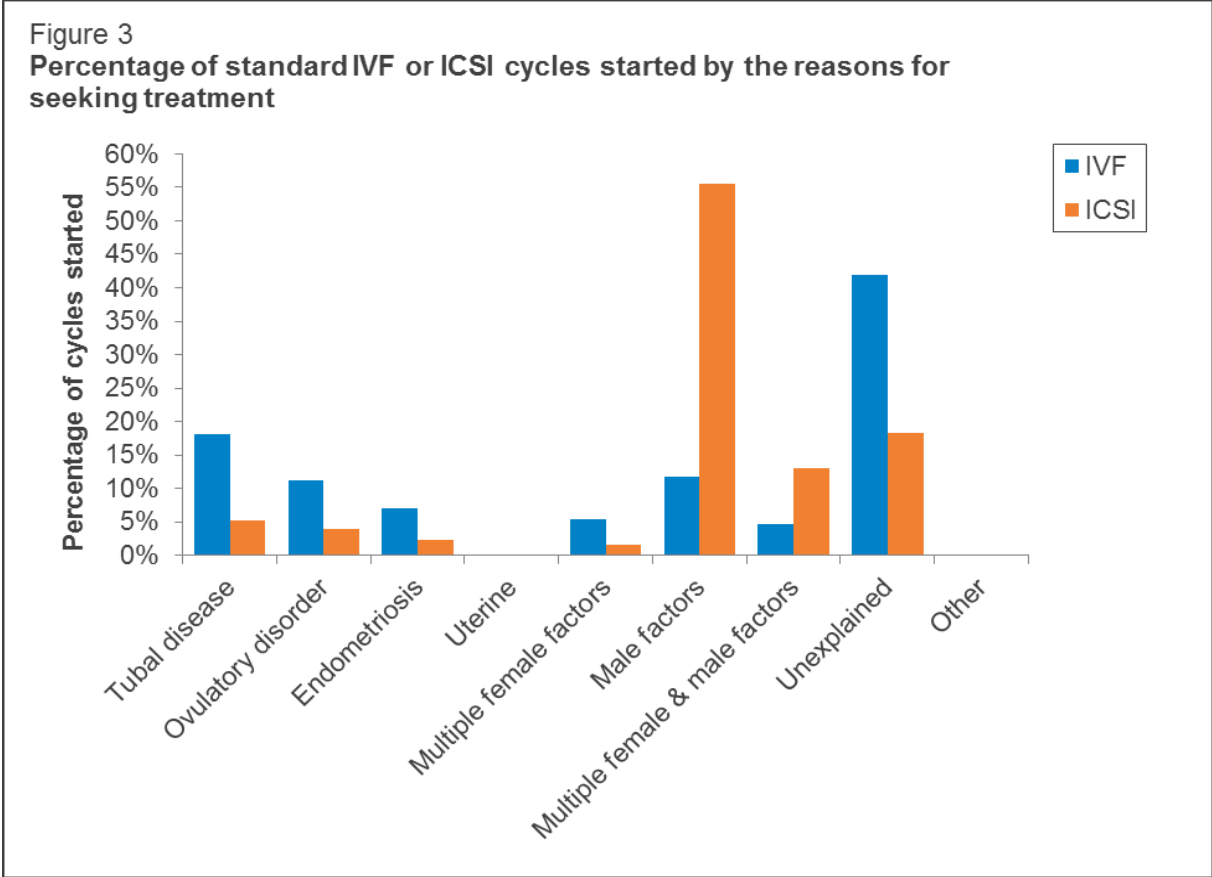
For treatment cycles using DI, 16.2% of cycles were funded by the NHS in 2012, slightly less than the percentage funded by the NHS in 2011 (18.0%).

## What types of infertility were treated with IVF or ICSI?

The data in this report is split into those receiving IVF only and those receiving IVF with ICSI.



About half (53.1%) of fresh IVF treatments in 2012 involved ICSI; a similar proportion to that seen in recent years (2011: 53.0%; 2010: 51.9%). 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 3, where the proportion of male factor infertility treated with ICSI is much greater than that by standard IVF.

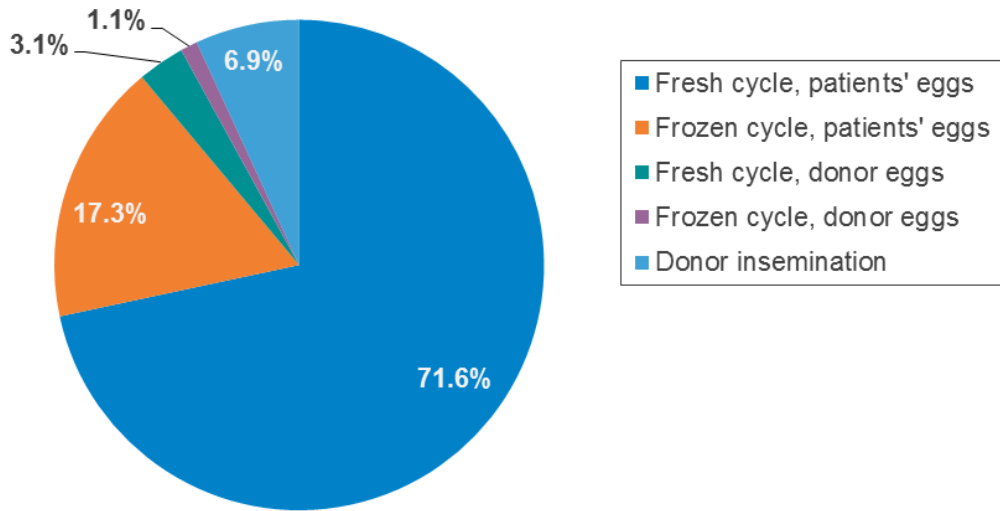


It is important to note that the cause of infertility is recorded at the start of a treatment cycle and it is possible that further problems may become apparent during treatment (or in the case of unexplained infertility, cause may be uncovered later on).

**What types of cycles were started?**

In the majority of treatment cycles – around three quarters – a woman’s own freshly collected eggs were used (Figure 4). A smaller number of women used embryos created from their own eggs, which had been frozen previously and subsequently thawed before transfer. The distribution is almost exactly the same as that seen in 2011. In 2012, a small number of cycles were treated using donor eggs (4.2%) and 6.9% of cycles started used donor sperm.

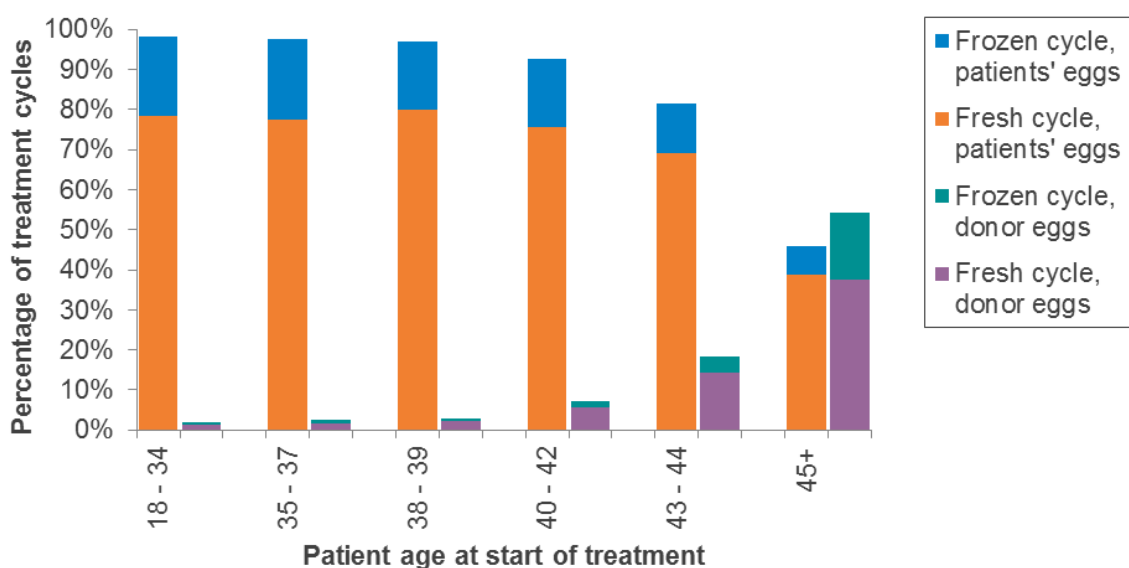
Figure 4  
Proportion of IVF and DI treatment cycles started (2012)



### 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 (Figure 5). As noted above, the majority of women used their own eggs, however, the proportion of women using donor eggs increases with age. This distribution has changed slightly since 2011 as patients over 45 years old are now using donor eggs more often than their own.

Figure 5  
The distribution of different treatment types by patient age (2012)



## Fresh and frozen cycles

'Fertility treatment in 2011: trends and figures' noted that frozen cycles saw a bigger increase than fresh ones between 2010 and 2011. Table 2 shows that the proportion of fresh and frozen cycles undertaken in 2012 is almost unchanged from 2011.

Table 2  
**Proportion of fresh and frozen treatment cycles started using patients' own eggs (2011 and 2012)**

	2011		2012	
	Fresh	Frozen	Fresh	Frozen
<b>Proportion of cycles</b>	80.7%	19.3%	80.6%	19.4%

## Stimulated and non-stimulated cycles

Some fertility clinics offer natural IVF cycles where no stimulatory drugs are used. Of the 46,299 fresh cycles performed in 2012 using a woman's own eggs, 510 (1.1%) were natural cycles. This proportion is similar to 2011, where the figure was 596 (1.3%).

Of the 4,452 DI cycles performed in 2012, around half (51.3%) did not use stimulatory drugs. This represents only a slight change since 2011, when 51.9% did not use stimulatory drugs.

## Pre-implantation genetic diagnosis (PGD)

PGD is used in conjunction with IVF and is where one or two 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 couples 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<sup>9</sup>.

Eighteen clinics provided PGD in 2012. A total of 523 of the IVF treatment cycles started in 2012 involved PGD, which is an increase on the 412 cycles started in 2011. Figures for 2011 in Table 3 include the live birth rate. This represents a slight decrease when compared to figures from 2010 when the live birth rate for treatment using PGD was 31.6%.

<sup>9</sup> Human Fertilisation and Embryology Authority (HFEA). PGD conditions authorised by the HFEA, 2013. Available at: [www.hfea.gov.uk/cps/hfea/gen/pgd-screening.htm](http://www.hfea.gov.uk/cps/hfea/gen/pgd-screening.htm)

Table 3  
**Number of PGD treatment cycles and results (2011)**

<b>Number of cycles</b>	412
<b>Number of patients</b>	348
<b>Number of births</b>	116
<b>Number of babies</b>	134
<b>Live birth rate per cycle started</b>	28.2%

### Treatment cycles involving donated sperm

#### Donor insemination

Seventy-two clinics performed DI treatment in 2012. The number of DI cycles performed in the UK has increased between 2011 and 2012 (Table 4).

Table 4  
**Number of DI treatment cycles (2011 and 2012)**

Age	2011	2012
<b>18–34 years</b>	1,753	2,023
<b>35–37 years</b>	877	972
<b>38–39 years</b>	615	601
<b>40–42 years</b>	579	576
<b>43–44 years</b>	194	179
<b>45+ years</b>	83	101
<b>All ages</b>	<b>4,101</b>	<b>4,452</b>

## Donated sperm

A total of 2,354 fresh IVF cycles started in 2012 involved the use of donor sperm, an increase of 5.8% from 2011.

Table 5  
Number of IVF treatment cycles performed using donor sperm (2011 and 2012)

	2011	2012
Number of cycles	2,225	2,345

For information on the outcome of treatments using donated sperm, see Tables 15 and 16.

### Key points

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

## Section 2: Embryo transfers

### How many embryos were transferred during 2012?

A total of 86,466 embryos were transferred during the course of fertility treatment started in 2012, of which:

- 28,979 fresh embryos were transferred during IVF treatment;
- 39,152 fresh embryos were transferred during ICSI treatment<sup>10</sup>; and
- 17,135 thawed embryos which had previously been frozen were transferred.

### How many embryos were transferred in each cycle?

Clinics 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.

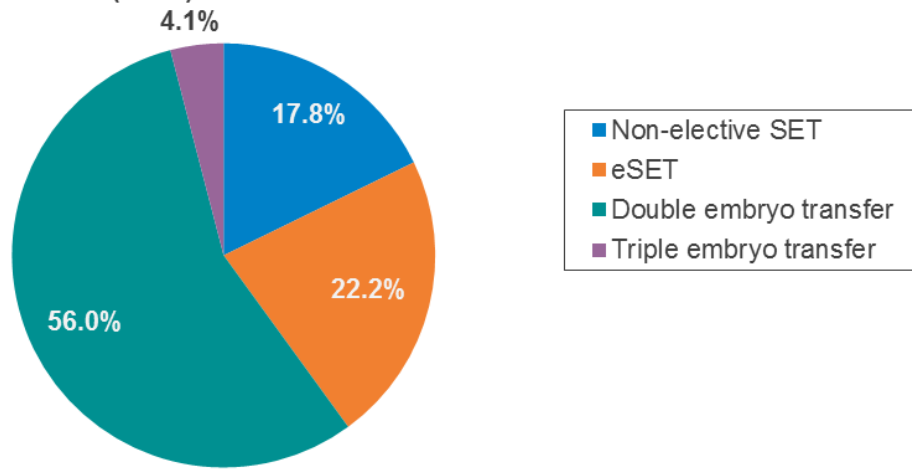
Whilst two embryos were transferred in the majority of cycles performed in 2012, as in 2011; the proportion of single embryo transfers has increased since 2011 (Figure 6). Around one in five women overall (22.2%) had eSET, and slightly less (17.8%) had non-elective SET (ie, only one embryo was available for transfer). In 2011, 16.8% of women had an eSET, and 18.7% received a non-elective SET. As we would expect, the percentage of cycles where only one embryo was available for transfer remained unchanged but the number of women having eSET has increased from 2011 to 2012.

For information relating to fresh cycles, the accompanying data sheet is available to download from our website ([www.hfea.gov.uk](http://www.hfea.gov.uk)).

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<sup>10</sup> 370 embryos were transferred during treatment involving both IVF and ICSI. 830 embryos were transferred during PGD, PGS or unclassified cycles.

Figure 6  
**Proportion of embryo transfers (fresh and frozen) by the number of embryos transferred (2012)**

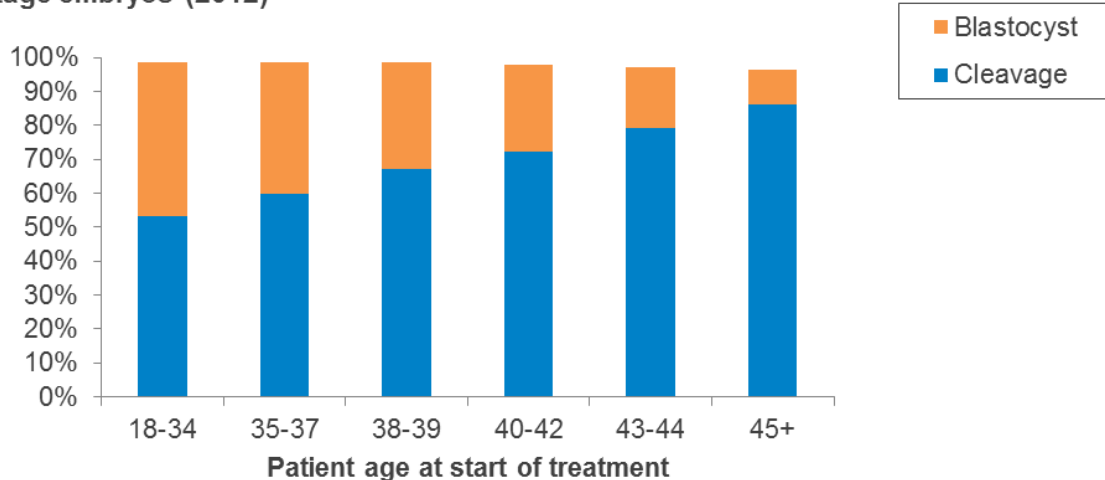


### Does the number of embryos transferred differ for cleavage or blastocyst transfers?

Blastocysts are embryos which are grown in the laboratory incubator for five to six days before they are transferred into the womb. Not all embryos will develop into blastocysts, and clinics use their judgement to decide whether to continue culturing embryos in the hope that some will develop to the blastocyst stage or to transfer embryos at an earlier stage of development called the cleavage stage after two to three days culture in the laboratory.

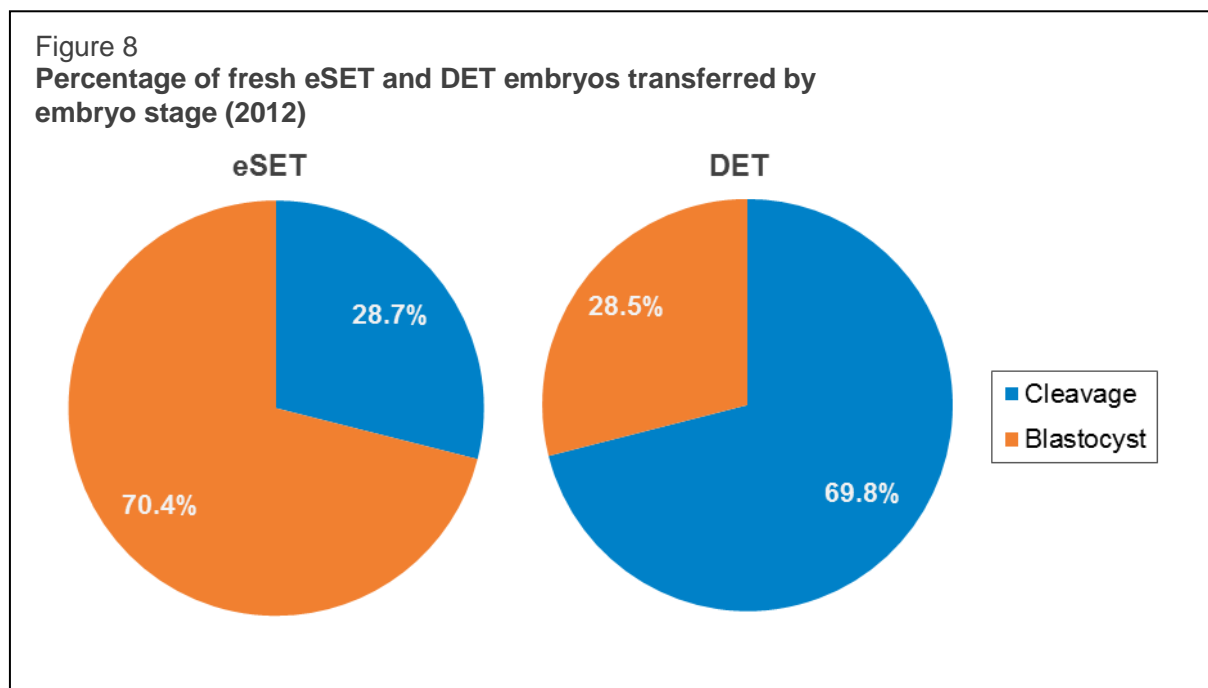
Blastocyst transfer has been increasing in the UK over the past five years. Previously, almost all embryos were transferred as cleavage stage embryos. Overall, younger women had a higher proportion of blastocyst transfers than older women, and the proportion of cleavage stage transfers gradually increases with age (Figure 7).

Figure 7  
**Percentage of fresh embryo transfers involving cleavage or blastocyst stage embryos (2012)**



It is important to note that the bars do not sum to 100%, most noticeably in the older age groups, 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 2012, over two thirds (70.4%) of eSET transfers were of blastocyst-stage embryos, which is an increase of around five percentage points on 2011. However, where two embryos are transferred in 2012 over two thirds (69.8%) were of cleavage stage embryos, which is a decrease of around four percentage points on 2011.



It is important to note that while both pie charts in Figure 8 are the same size in order to show the differing proportions, the actual number of DETs is much higher than the number of eSETs.

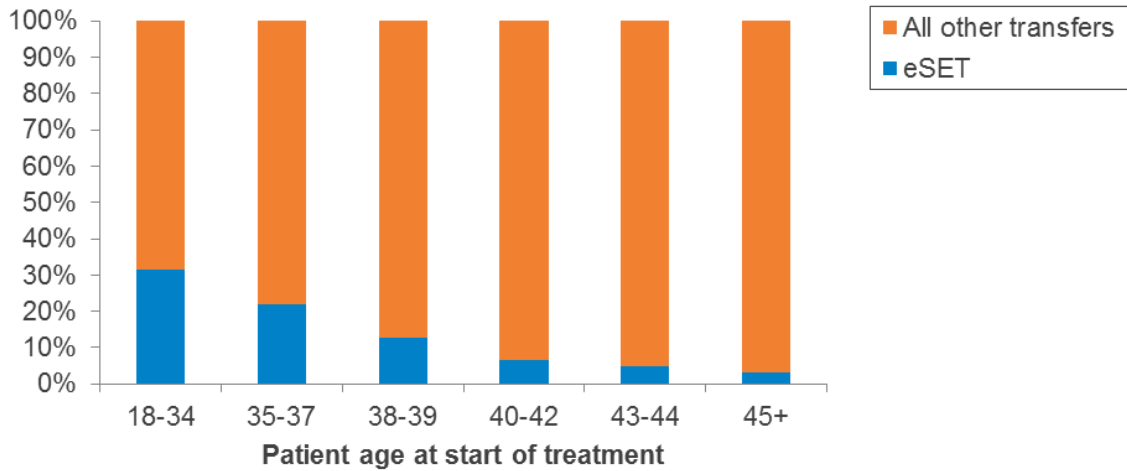
### What proportion of transfers were eSET, and how did this vary by patient age at the start of treatment?

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, see Figure 14.



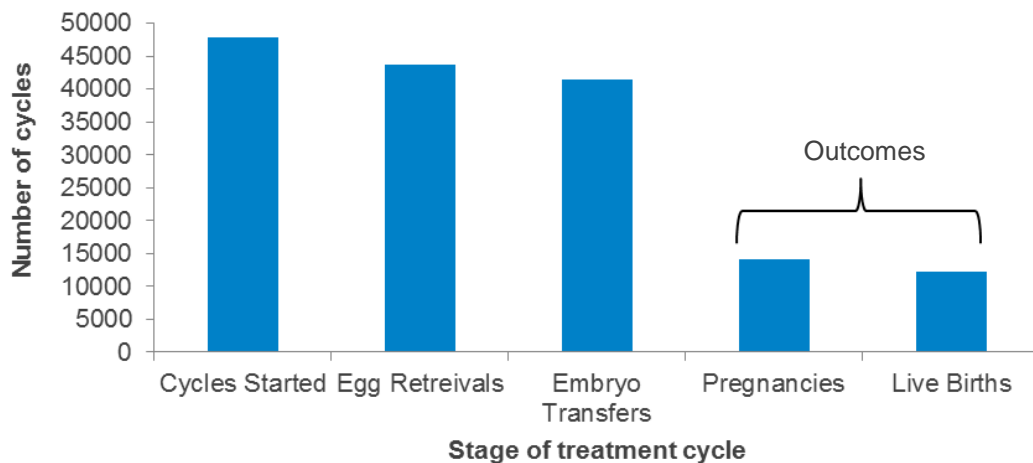
Figure 9  
**Proportion of all embryo transfers performed that are eSET (2012)**



### 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. These figures relate to fresh cycles started in 2011 with the intention of conceiving immediately. Outcomes have been added to give an indication of the proportion of cycles which progress to pregnancy and birth.

Figure 10  
**Number of fresh IVF cycles started and the stage of treatment each reached (2011)**



The most common reason identified for a cycle to fail before the egg retrieval stage is because the woman's ovaries do not respond well to stimulation (36.5%). A further 6.1% fail at this stage because the woman's ovaries over respond which can be dangerous as it could

lead to Ovarian Hyperstimulation Syndrome (OHSS). The remaining 57.4% fail for other, unspecified reasons.

The most common reason a cycle fails between egg retrieval and embryo transfer is because of a risk of OHSS (37.0% of cycles abandoned after egg retrieval but before transfer; 697 patients). This is a decrease on that seen in 2011 (43.0%). 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.
- The proportion of embryo transfers which are eSET decreases as women's age increases.
- Most embryos are transferred when they reach cleavage stage, except in eSET procedures, when more are transferred at the blastocyst stage.

## Section 3: Results

### IVF cycles using 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 are from cycles started in 2011, and the pregnancy figures are from cycles started in 2012.

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

A total of 13,734 pregnancies were reported as a result of IVF treatment which started in 2011 and a total of 13,786 pregnancies were reported as a result of IVF treatment which started in 2012.

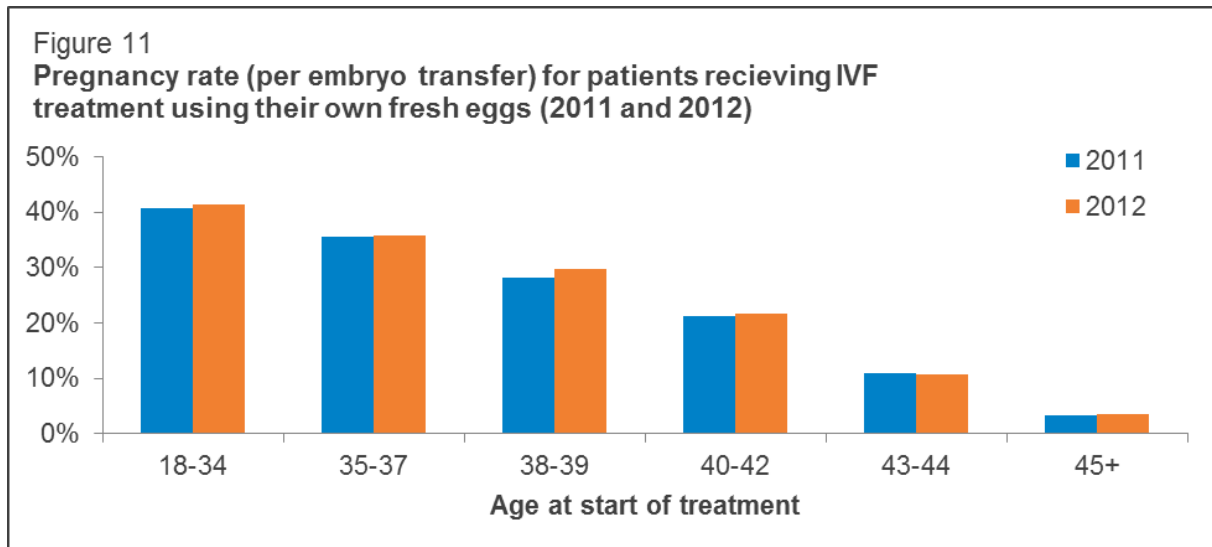
#### How is the pregnancy rate affected by the woman's age?

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 substantially 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 remained largely steady between 2011 and 2012 (Table 6 and Figure 11).

Table 6  
Pregnancy rate (per embryo transfer) for IVF treatment cycles using patients' fresh eggs (2011 and 2012)

Age	2011	2012
18–34 years	40.6%	41.5%
35–37 years	35.6%	35.9%
38–39 years	28.1%	29.7%
40–42 years	21.2%	21.7%
43–44 years	11.0%	10.7%
45+ years	3.4%	3.4%
All ages	33.8%	34.6%



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<sup>11</sup>.

### 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 (Table 7).

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 less than 37 years. 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 for other reasons. Figure 7 shows that younger women were more likely to have a blastocyst transfer.

<sup>11</sup> Human Fertilisation and Embryology Authority (HFEA) Choose a Fertility Clinic, 2013. Available at: <http://guide.hfea.gov.uk/guide/>

Table 7  
Pregnancy rate for the number and stage of embryos transferred (2012)

	eSET		Double embryo transfer	
	Cleavage	Blastocyst	Cleavage	Blastocyst
18–34 years	33.3%	49.1%	38.5%	50.7%
35–37 years	27.6%	45.8%	33.1%	46.2%
38–39 years	18.7%	40.8%	27.3%	46.8%
40–42 years			17.6%	32.6%
43–44 years	16.3%	26.3%	7.4%	19.8%
45+ years				
<b>All ages</b>	<b>29.8%</b>	<b>47.1%</b>	<b>31.6%</b>	<b>45.8%</b>

Figures are aggregated due to the small numbers involved.

### 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 2011 and 2012 (Table 8), although the rate of decrease is not as great as that seen since the introduction of the multiple births policy<sup>12</sup>. For a closer look at the multiple pregnancy and eSET rates since 2008, see the 'Short term trends' section.

The apparent small increase in the multiple pregnancy rate for women aged 43 and over is likely to be due to the small number of pregnancies and multiple pregnancies reported in this group.

<sup>12</sup> For information see [www.hfea.gov.uk/Multiple-births-after-IVF.html](http://www.hfea.gov.uk/Multiple-births-after-IVF.html) or [www.oneatatime.org.uk](http://www.oneatatime.org.uk)

Table 8  
**Multiple pregnancy rate for treatment cycles using patients' fresh eggs  
 (2011 and 2012)**

Age	2011	2012
18–34 years	21.7%	18.6%
35–37 years	20.4%	20.7%
38–39 years	20.7%	19.2%
40–42 years	16.0%	15.1%
43–44 years	9.7%	9.9%
45+ years		
<b>All ages</b>	<b>20.6%</b>	<b>18.8%</b>

Figures are aggregated due to the small numbers involved.

### 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 embryo splits in two, resulting in identical (monozygotic) twins.

After the transfer of two cleavage-stage embryos, around a quarter (26.4%) of pregnancies confirmed by ultrasound were of two or more babies (Table 9). The multiple pregnancy rate is affected by a woman's age, and is higher in younger women (around one third of pregnancies). Table 9 also shows that transferring two blastocysts at a time carries an even higher risk of multiple pregnancy (37.0%).

When eSET is performed, the chance of a multiple pregnancy is similar to that of all conceptions, which is 1.59%<sup>13</sup>.

Some research suggests that blastocyst transfers are more likely to result in monozygotic (identical) twins<sup>14</sup>. The figures published in this report also suggest this, although the numbers are very small (aggregated figures are provided). The HFEA continues to monitor this as it gathers more data.

<sup>13</sup> Office for National Statistics. Statistical Bulletin: Births in England and Wales by characteristics of birth 2, 2012. Available at: [www.ons.gov.uk/ons/dcp171778\\_338077.pdf](http://www.ons.gov.uk/ons/dcp171778_338077.pdf). The ONS figures will contain multiple births after fertility treatment, as well as natural conceptions as they cover all recorded births in England and Wales.

<sup>14</sup> Kawachiya, S., et al. Blastocyst culture is associated with an elevated incidence of monozygotic twinning after single embryo transfer. *Fertility and Sterility* 2011; 95(6); 2140-2142.

Table 9  
**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		31.5%		41.6%
35–37 years		25.6%		40.2%
38–39 years		19.1%		29.9%
40–42 years	0.3%		1.5%	
43–44 years		10.9%		23.7%
45+ years				
<b>All ages</b>	<b>0.3%</b>	<b>26.4%</b>	<b>1.5%</b>	<b>37.0%</b>

Figures are aggregated due to the small numbers involved.

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

A total of 14,020 babies were born as a result of IVF treatment using a woman's fresh, own eggs in 2011, including those born as multiples.

The live birth rate per cycle started has decreased very slightly for women of all ages between 2010 and 2011 (Table 10), after a similarly small increase was seen between 2009 and 2010. Although the general trend in the live birth rate after fresh transfers has been upward over time, fluctuations can be seen. For instance, there was a decline of one percentage point in the live birth rate between 2003 and 2004 which recovered the next year.

Table 10  
**Live birth rate per treatment cycle started using patients' fresh eggs (2010 and 2011)**

Age	2010	2011
18–34 years	32.2%	32.2%
35–37 years	27.8%	27.4%
38–39 years	20.8%	19.9%
40–42 years	13.6%	13.4%
43–44 years	5.0%	5.1%
45+ years	1.9%	0.8%
<b>All ages</b>	<b>25.6%</b>	<b>25.4%</b>

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

As with the multiple pregnancy rate (Table 8), there was a continued decline in the multiple birth rate (Table 11) between 2010 and 2011.

In 2008, nearly one in three births to women aged 18 to 34 years were of more than one baby; by 2010, this had been brought down to only one in five. This is due to clinics implementing focussed multiple birth reduction strategies.

Table 11  
**Multiple birth rate for treatment cycles using patients' fresh eggs (2010 and 2011)**

Age	2011	2012
18–34 years	21.3%	20.0%
35–37 years	20.3%	18.2%
38–39 years	16.3%	17.8%
40–42 years	15.3%	13.7%
43–44 years	6.0%	8.2%
45+ years		
<b>All ages</b>	<b>19.8%</b>	<b>18.8%</b>

Figures are aggregated due to the small numbers involved.



### Key points

- The pregnancy rate has remained broadly steady between 2010 and 2012 and the multiple pregnancy rate has decreased.
- After a double blastocyst transfer, a much higher percentage of pregnancies were of two or more fetuses, approaching 50% in women aged 18 to 34 years. By receiving eSET this chance is reduced to a level similar to natural conceptions.
- Between 2010 and 2011, the overall live birth rate per cycle started has decreased very slightly. During the same time period, the overall multiple birth rate has continued to decline. The HFEA will continue monitoring these figures.

## Section 3: Results

### 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', although embryos are always thawed before being transferred.

In 2012, 11,166 cycles using thawed frozen embryos created from the woman's own eggs were performed, an increase of 1.6% compared with 2011.

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

The pregnancy rate after frozen embryo transfers (Table 12) is generally lower than when fresh embryos are transferred (Table 6). However, between 2011 and 2012, the pregnancy rates following frozen embryo transfer have risen in all age groups.

It is notable that the pregnancy rate does not drop away as substantially in the older age groups as it does in the 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 12  
Pregnancy rate per frozen embryo transfer (2011 and 2012)

Age	2011	2012
18–34 years	29.8%	30.1%
35–37 years	26.2%	28.6%
38–39 years	23.1%	25.0%
40–42 years	20.9%	22.7%
43–44 years	11.4%	13.3%
45+ years		
All ages	26.2%	27.6%

Figures are aggregated due to the small numbers involved.

## 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 transfers is lower than that seen after fresh embryo transfers (Table 9).

Pronounced differences between the individual age groups are likely to be due to the smaller number of outcomes in certain groups (Table 13). For instance, the change from 19.3% to 11.1% in the 40-42 group relates to fewer than 20 fewer multiple pregnancies.

Table 13  
Multiple pregnancy rate (2011 and 2012)

Age	2011	2012
18–34 years	18.7%	19.1%
35–37 years	16.2%	15.1%
38–39 years	14.8%	13.7%
40–42 years	19.3%	11.1%
43–44 years	9.1%	11.4%
45+ years		
All ages	17.5%	16.5%

Figures are aggregated due to the small numbers involved.

## 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 (Table 6), and in pregnancies after frozen embryo transfers (Table 12).

Table 12  
Pregnancy rate per frozen embryo transfer (2011 and 2012)

Age	2011	2012
18–34 years	29.8%	30.1%
35–37 years	26.2%	28.6%
38–39 years	23.1%	25.0%
40–42 years	20.9%	22.7%
43–44 years	11.4%	13.3%
45+ years		
<b>All ages</b>	<b>26.2%</b>	<b>27.6%</b>

Figures are aggregated due to the small numbers involved.

Table 14 shows that the live birth rate after frozen embryo transfers also follows this trend. Overall there has been an increase in live birth rate between 2010 and 2011.

Table 14  
Live birth rate per cycle started after frozen embryo transfer using patients' eggs (2010 and 2011)

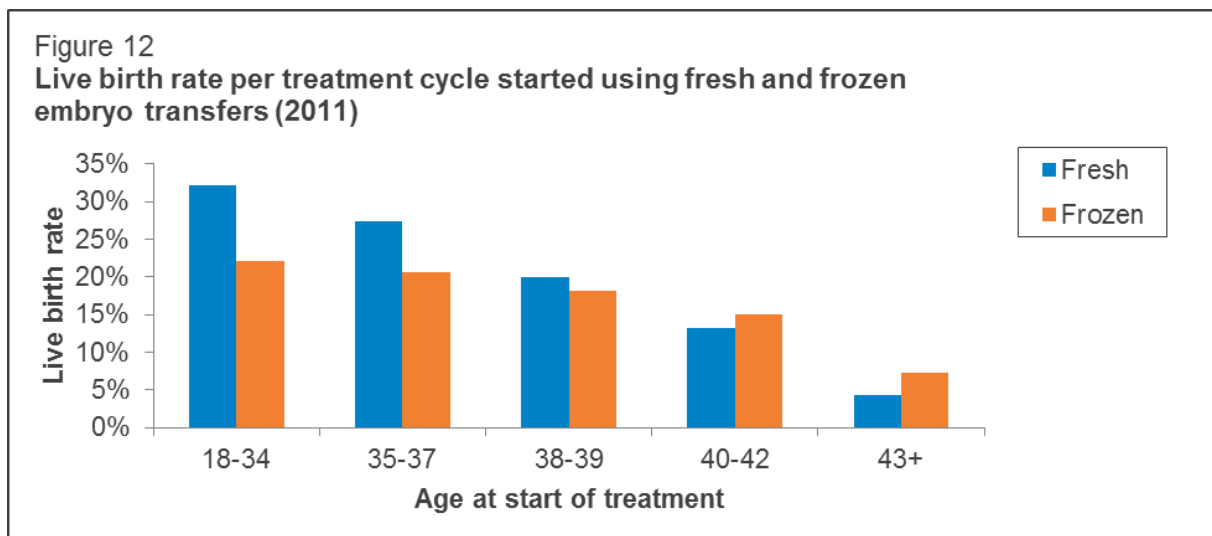
Age	2011	2012
18–34 years	21.4%	22.1%
35–37 years	20.7%	20.7%
38–39 years	17.1%	18.2%
40–42 years		15.0%
43–44 years	13.1%	7.2%
45+ years		
<b>All ages</b>	<b>19.2%</b>	<b>19.9%</b>

Figures are aggregated due to the small numbers involved.

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

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

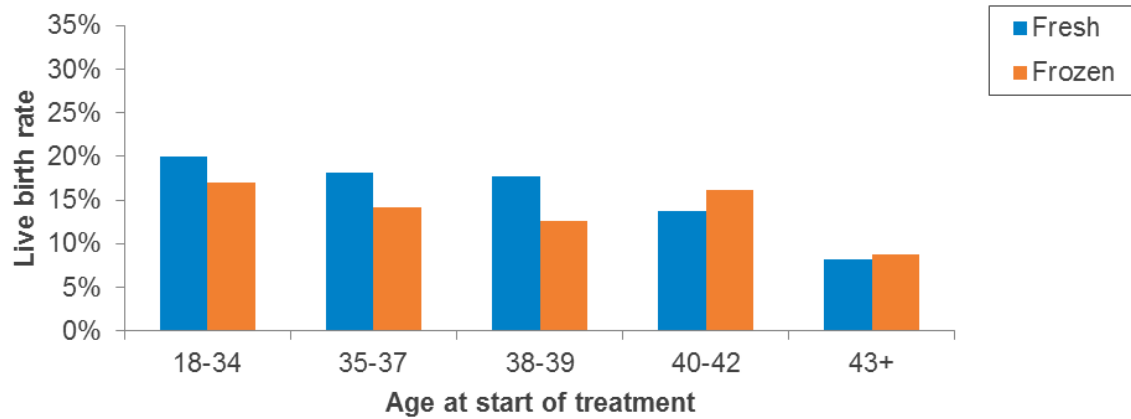
Comparing live birth rates directly between fresh and frozen embryo transfers (Figure 12) shows that while this trend is true for the younger age groups (where most of the cycles are performed), the trend is reversed in the older age groups. This may be because the embryos transferred in the frozen cycle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



## 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 over 40 years (Figure 13). Overall after frozen embryo transfers, the rate is 15.5% of all live births, compared with 18.8% after fresh embryo transfers (both 2011). In this graph those aged 43 and over have been grouped together because of the small numbers involved.

Figure 13  
Multiple birth rate for frozen and fresh embryo transfers (2011)



### 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.

## Section 3: Results

### Cycles using donated sperm

Note that because this section focuses on live birth results rather than pregnancies, the data is from 2011<sup>15</sup>.

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

A total of 2,225 cycles of fresh own-egg IVF were performed in 2011 using donated sperm. This resulted in 641 births and 776 babies being born. The overall live birth rate is therefore 28.8%, higher than we reported for 2010 (27.1%).

Table 15  
**Live birth rate per IVF treatment cycle started using patients' fresh eggs and donor sperm (2011)**

Age	2011
18–34 years	40.3%
35–37 years	30.5%
38–39 years	26.9%
40–42 years	16.7%
43–44 years	6.6%
45+ years	
<b>All ages</b>	<b>28.8%</b>

Figures are aggregated due to the small numbers involved.

#### What is the live birth rate for DI?

A total of 4,101 cycles of DI were performed in 2011. This resulted in 508 births and 547 babies being born. 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.

<sup>15</sup> As noted in the Background section, in our last report we published data on the number of women donating and those receiving shared eggs. We are currently in the middle of a project to improve the section of our database holding this data and therefore will not be publishing these figures at the moment. We have also removed figures relating to donated eggs and donated embryos for the same reason. We plan to publish these figures in the future.

The overall live birth rates (13.8% for stimulated DI and 11.0% for unstimulated DI) are lower than we reported for 2010 (14.8% and 11.3%, respectively).

Table 16  
Live birth rate per DI cycle started (2011)

Age	Stimulated	Unstimulated
18–34 years	19.7%	14.9%
35–37 years	14.1%	11.6%
38–39 years	10.5%	7.7%
40–42 years		
43–44 years	5.7%	3.8%
45+ years		
<b>All ages</b>	<b>13.8%</b>	<b>11.0%</b>

Figures are aggregated due to the small numbers involved.

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

A total of 766 cycles of IVF were performed in women who registered with a female partner in 2011; 205 more than in 2010 (a 36.5% increase). This resulted in 223 live births and 265 babies being born. The live birth rate per cycle started was therefore 29.1% – a slight decrease on 2010 (31.2%).

A total of 1,271 cycles of DI were performed in women who registered with a female partner in 2011; 243 more than in 2010 (a 23.6% increase). This resulted in 148 live births and 161 babies being born. The live birth rate per cycle started was therefore 11.6%, a slight decrease on 2010 (13.7%).

#### Key points

- The number of treatment cycles using donated sperm (both IVF and DI) has increased between 2010 and 2011.
- Stimulated DI cycles tend to have a higher success rate than unstimulated DI.
- The number of same-sex female couples receiving treatment (whether IVF or DI) has significantly increased.



## Section 4: Trends

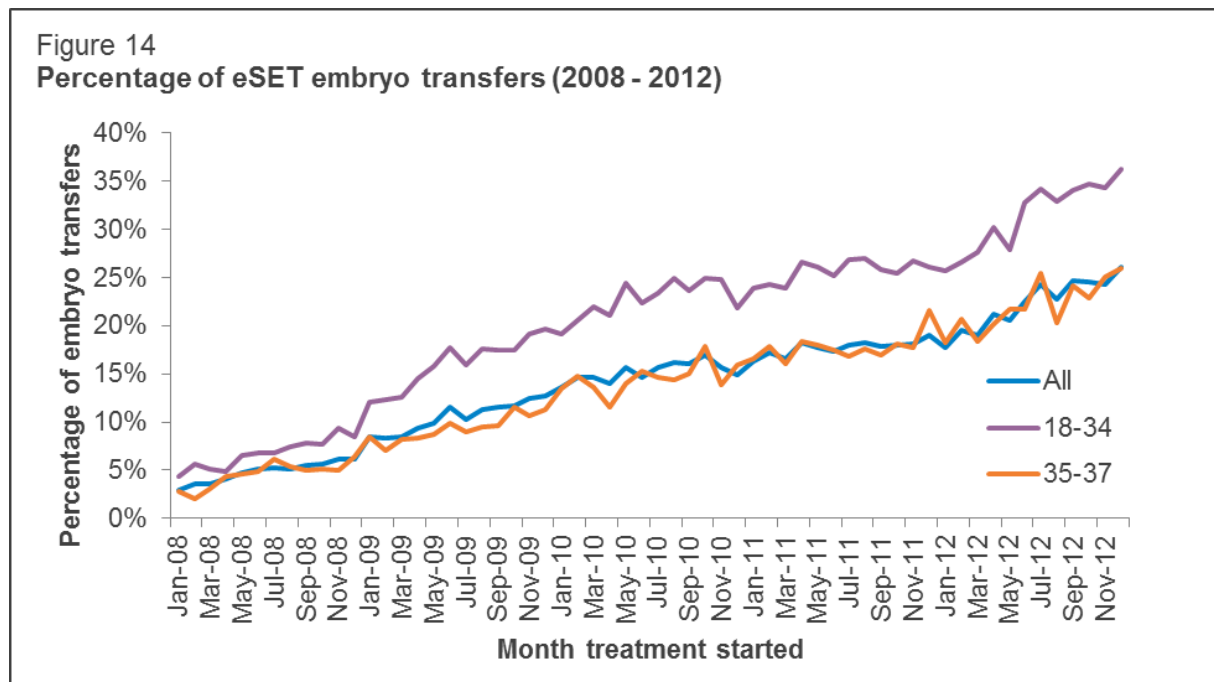
### Short term trends

In January 2009, the HFEA 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. The HFEA has 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 across the sector. In 2008, 39,000 embryo transfers were performed, of which 1,919 (4.9%) were eSET. In 2012, 50,219 embryo transfers were performed, of which 11,152 (22.2%) were eSET.

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<sup>16</sup>.

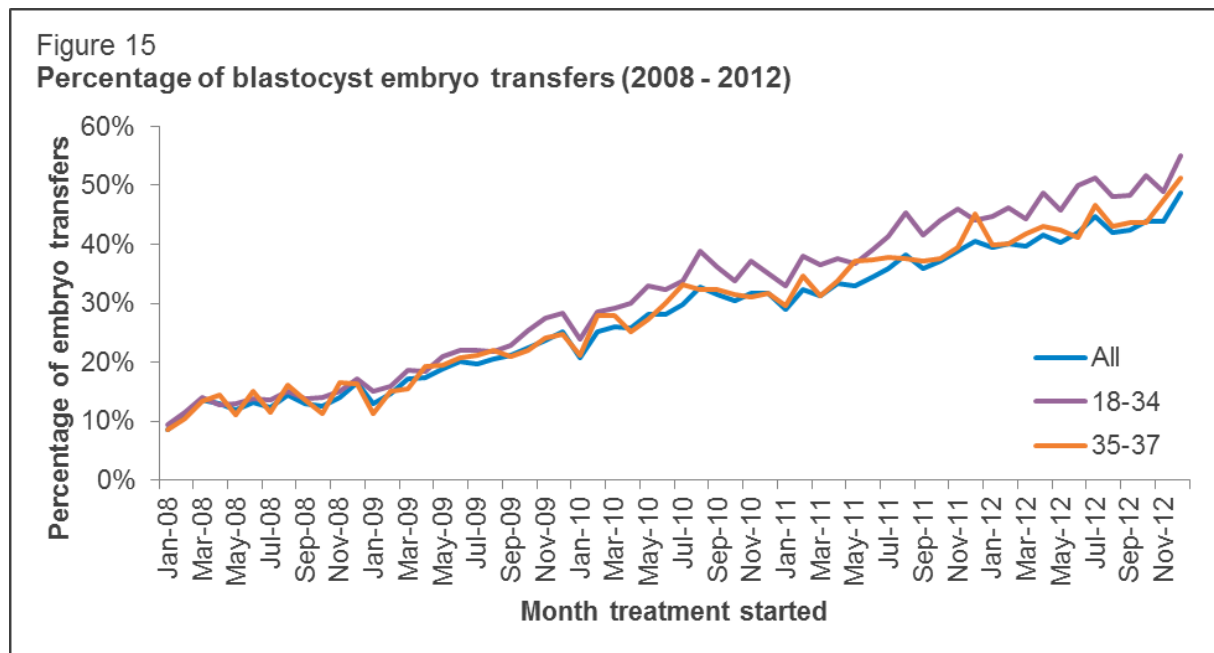


<sup>16</sup> Cutting, R., et al. Elective single embryo transfer: guidelines for practice British Fertility Society and Association of Clinical Embryologists. Human Fertility 2008; 11: 131-146.

## 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 48.7%, in December 2012.

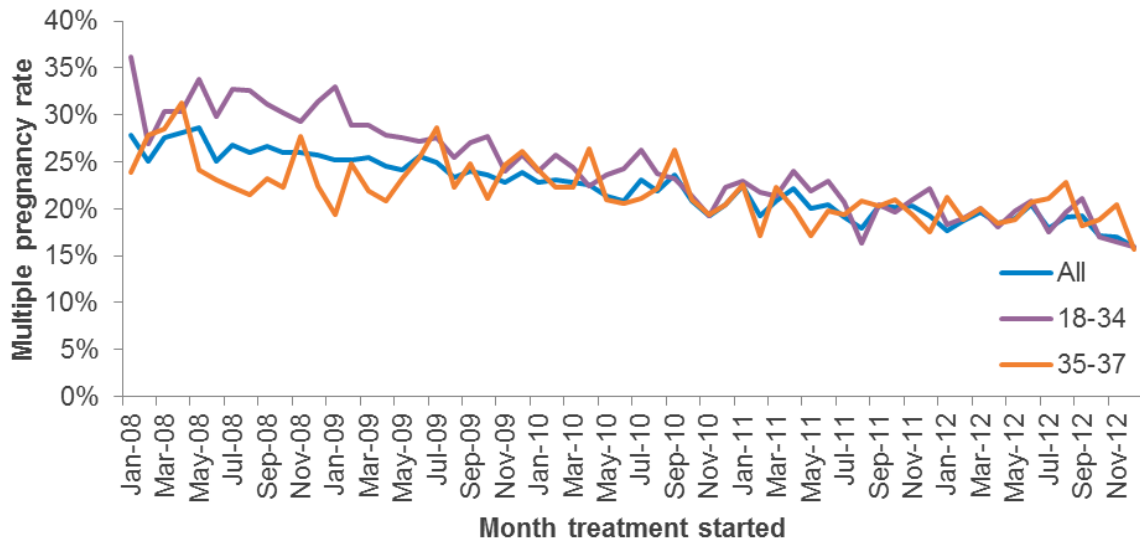


## How has the multiple pregnancy rate changed since 2008?

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 between 2008 and the end of 2012. 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 18.4% in 2012.

Figure 16  
**Monthly multiple pregnancy rates (2008 - 2012)**

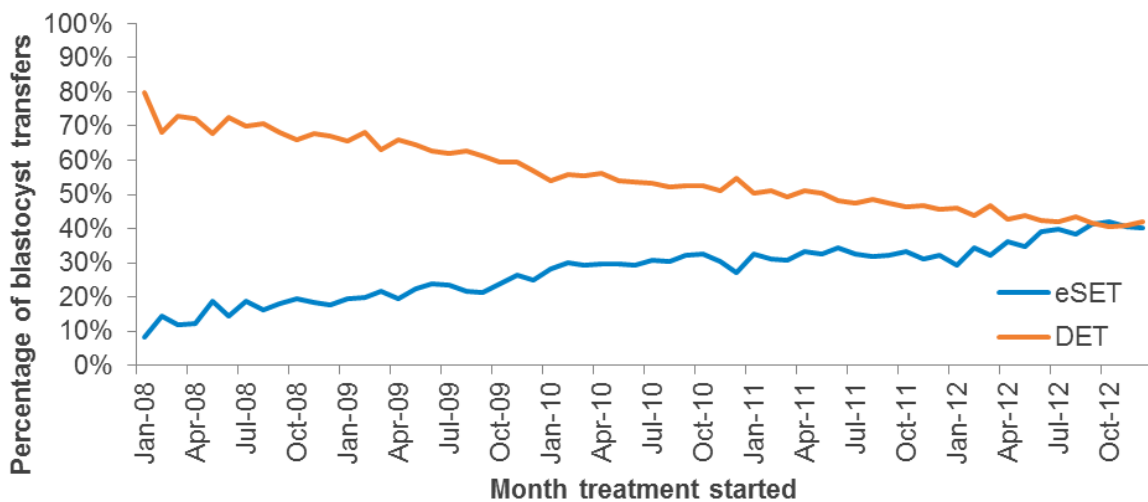


**How has the proportion of blastocyst transfers which are single or double changed since January 2008?**

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 is 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 the accompanying data sheet.

Figure 17  
**Proportion of fresh blastocyst transfers (eSET and DET; 2008 - 2012)**

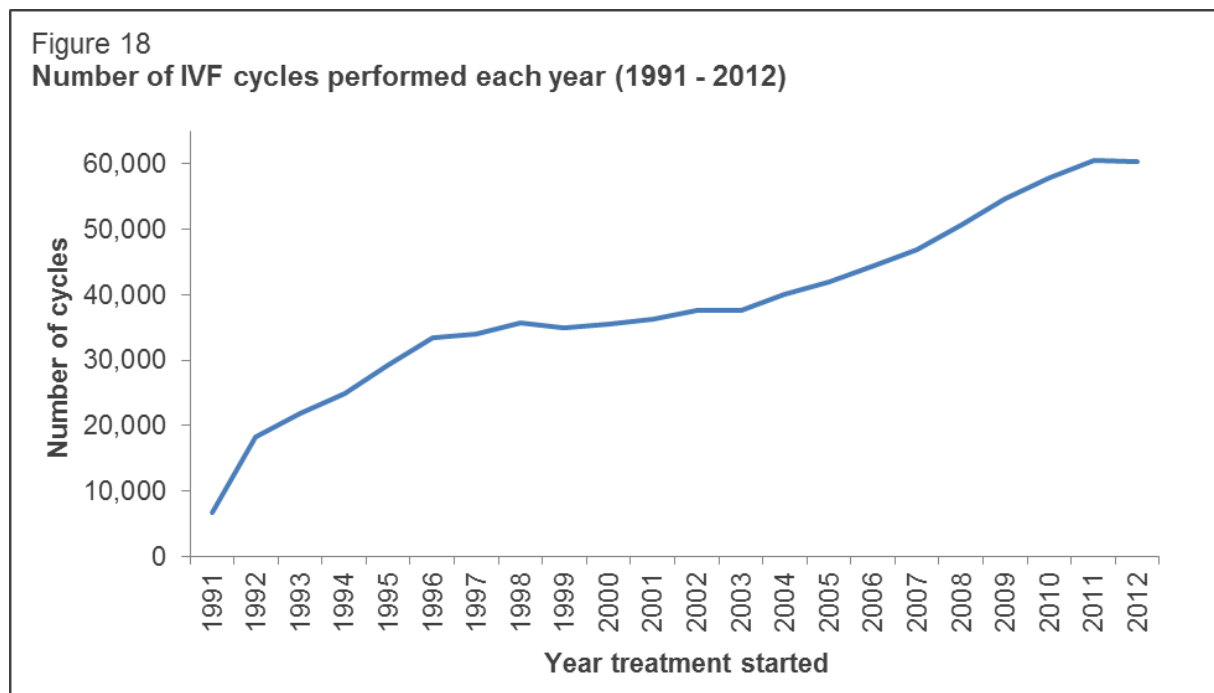


## Long term trends

The HFEA has been collecting information about licensed fertility treatments performed in the UK since 1991. As a result it is able to look at some long term trends in the sector.

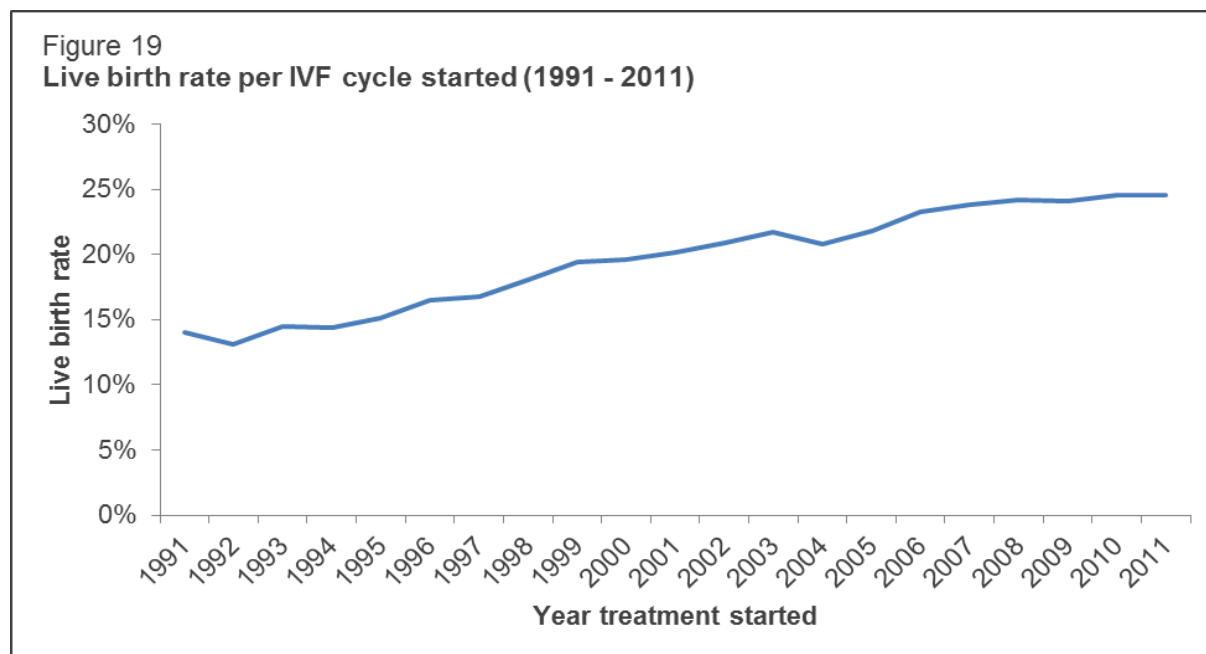
### How has the number of cycles performed each year since 1991 changed?

The number of IVF cycles, including ICSI and earlier micromanipulation techniques, performed every year in the UK has increased almost every year since 1991. The annual increases slowed down in the late 1990s and early 2000s. However, they continued to increase steadily from around 2003 until 2012.



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

The live birth rate has increased fairly consistently since 1991; from 14.0% in 1991 to 24.5% in 2011. Some years have shown a steadying off and even a decline. However, the overall trend is clearly an increasing one, reflecting improvements in clinical practice.



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

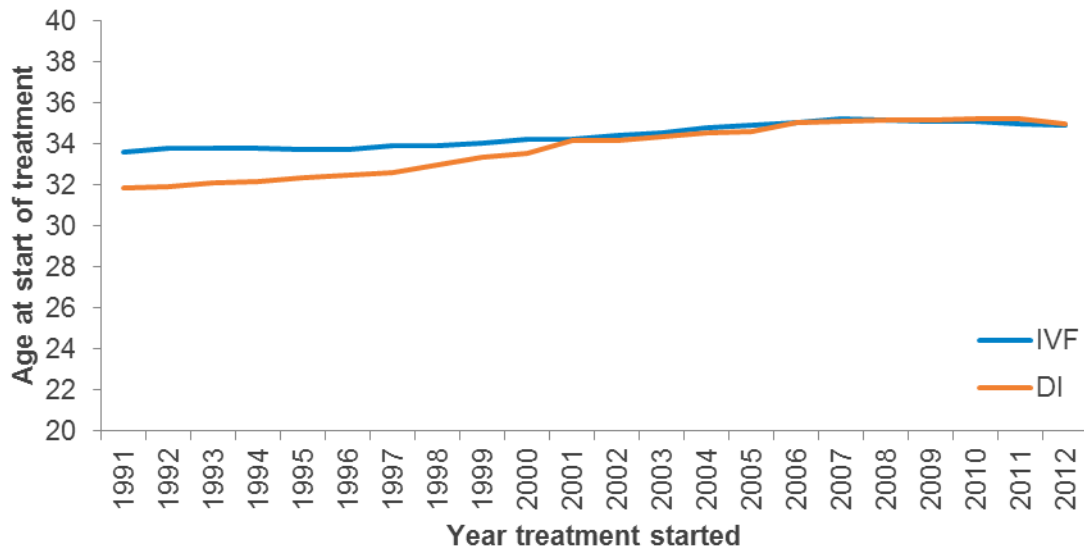
There is a general trend in the UK and elsewhere for women to have children slightly later in life<sup>17</sup> and the long term trend in the age of women seeking fertility treatment reflects this.

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 over three years for DI (31.9 to 35.0 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 the accompanying data sheet available on the HFEA website.

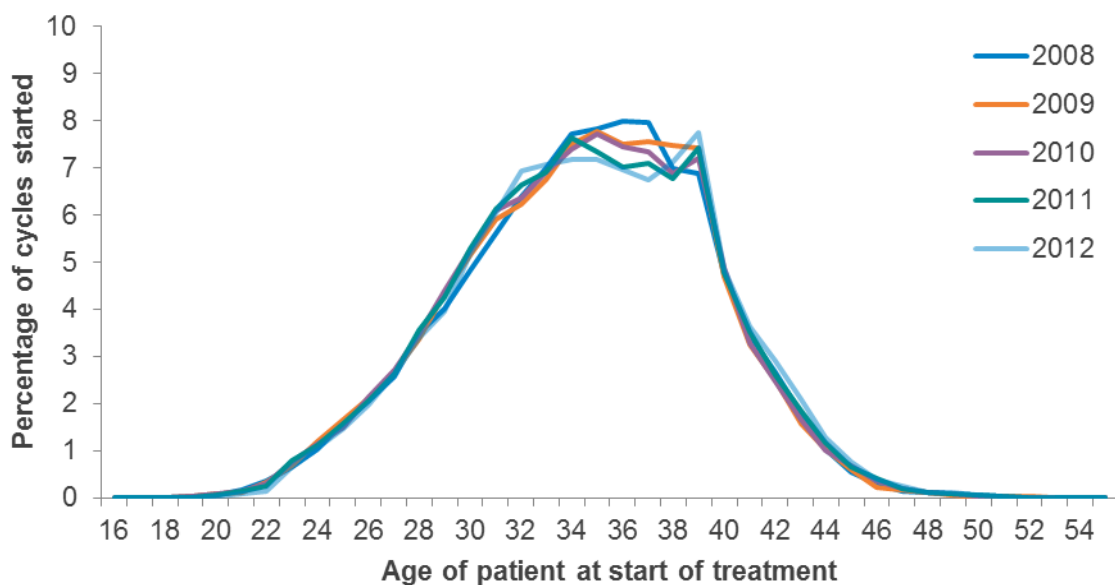
<sup>17</sup> Statistical Bulletin for Births and Deaths in England and Wales 2010, Office for National Statistics

Figure 20  
Average age of women undergoing IVF and DI treatment using fresh eggs (1991 - 2011)



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 slightly, the peak of the curve 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 data from the five most recent years (2008-2012) and we can see a similar trend: we would speculate that the spike in women aged 39 having treatment may be an artefact relating to NHS funding criteria.

Figure 21  
Percentage of cycles started by patients' age at start of treatment (2008 - 2012)



## 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, an estimated five million babies have been born worldwide after IVF treatment<sup>18</sup>. In the UK, 224,196 babies were born after IVF treatment between 1991 and 2011.

## 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 2000s<sup>19</sup>, with a further increase in 2010.

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 2011, 2.2% of all babies born in the UK were conceived as a result of IVF treatment.

### 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 couples to start their families later, but has remained steady over the last five years.
- The live birth rate after IVF has increased from 14% in 1991, to 25% in 2011.
- In 2011, more than 2% of all the babies born in the UK had been conceived through IVF treatment.

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<sup>18</sup> European Society of Human Reproduction and Embryology. ART Factsheet, 2010. Available at: [www.eshre.eu/ESHRE/English/Guidelines-Legal/ART-fact-sheet/page.aspx/1061](http://www.eshre.eu/ESHRE/English/Guidelines-Legal/ART-fact-sheet/page.aspx/1061) (accessed 04/12/2013).

<sup>19</sup> 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](http://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](http://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](http://www.nisra.gov.uk/demography/default.asp8.htm).