

Fertility treatment in 2011



trends and figures

Contents

	Page No:
Chair's foreword	3
Summary	4
Background	5
Frequently asked questions	7
Section 1: Overview	
How many fertility clinics were there in the UK in 2011?	10
How many women received fertility treatment?	11
How old were the women receiving treatment?	12
Who funded the treatment?	12
What types of infertility were treated with IVF or ICSI?	13
What types of cycle were started?	14
How did the age of the women being treated affect which treatment they received?	14
Fresh and frozen cycles	15
Stimulated and non-stimulated cycles	15
Pre-implantation genetic diagnosis	15
Treatment cycles involving donated sperm	16
Section 2: Embryo Transfers	
How many embryos were transferred in 2011?	17
How many embryos were transferred in each cycle?	17
Does the number of embryos transferred differ for cleavage or blastocyst stage embryos?	18
What proportion of transfers were elective SET, and how did this vary by the age of the woman?	19
Why are some cycles abandoned before the cycle is complete?	20
Section 3: Results	
IVF cycles using a woman's own fresh eggs	
How many pregnancies resulted from IVF treatment using a woman's own fresh eggs?	21
How is the pregnancy rate affected by the woman's age?	21
Does the pregnancy rate differ when one or two cleavage or blastocyst embryos are transferred?	22
What is the multiple pregnancy rate for IVF treatment using a woman's own fresh eggs?	23
Does the multiple pregnancy rate differ when one or two cleavage or blastocyst embryos are transferred?	23
What is the live birth rate for IVF treatment using a woman's own fresh eggs?	24
What is the multiple birth rate for IVF treatment using a woman's own fresh eggs?	25
IVF cycles using frozen embryos from a woman's own eggs	
What is the pregnancy rate for IVF treatment using frozen embryos from a woman's own eggs?	26
What is the multiple pregnancy rate for IVF treatment using frozen embryos from a woman's own eggs?	26
What was the live birth rate for IVF treatment using frozen embryos from a woman's own eggs?	27
How does the live birth rate for frozen transfers compare to that of fresh transfers?	27
What is the multiple birth rate for IVF treatment using frozen embryos from a woman's own eggs?	28

Cycles using donated sperm	
What is the live birth rate for IVF treatment using donated sperm?	29
What is the live birth rate for Donor Insemination?	29
How many couples in same sex partnerships had treatment, and what were the success rates?	30
Section 4: Trends	
Short term trends	
How has the elective single embryo transfer rate changed since 2008?	31
How has the proportion of blastocyst transfers changed since 2008?	32
How has the multiple pregnancy rate changed since 2008?	33
How has the proportion of blastocyst transfers which are single or double changed since 2008?	34
Long term trends	
How has the number of cycles performed each year changed since 1991?	35
How has the live birth rate for fresh IVF cycles changed since 1991?	36
How has the age of the women being treated changed since 1991?	37
How many babies have been born as a result of licensed fertility treatment since 1991?	39
How has the proportion of babies born following IVF treatment changed since 1991?	39

Chair's foreword

This is the second report of its kind published by the Human Fertilisation and Embryology Authority, part of its commitment to making the best possible use of the information it collects.

In its database – known as the Register – the HFEA holds detailed information about all fertility treatments, including outcomes, performed in the UK dating back to 1991. As a result, the Register has become a unique and hugely valuable resource. The HFEA aims to make as much of it as possible available to patients, clinicians, researchers and the wider public.

Good use of information by public bodies like the HFEA can help drive improvement in healthcare quality and outcomes and can support and improve the patient experience.



Professor Lisa Jardine
(Photographer: Des Willie)

In making good use of the information supplied by clinics, the HFEA aims to help patients better understand the choices available to them in this particular area of medicine. In addition to this yearly report, twice a year the HFEA publishes clinic specific data on its [Choose a Fertility Clinic](#) search on the HFEA website.

To inform research, parts of the Register are made available to academic researchers in the UK through a rigorous application process. We look forward to the first publications from such researchers appearing later this year.

The Register also informs policy making and better regulation, allowing us to see the impact of our regulatory interventions. Over recent years we have seen significant changes in clinical practice; in particular, women choosing to transfer only one embryo at a time, and hence a marked decline in multiple pregnancies and multiple births – a tangible improvement to the safety of mother and baby.

Over the coming year, the HFEA will be running a number of projects reviewing the Register data it collects and how it collects it. The aim is to make data submission easier all round, but not to impact the core functions of the Register.

As ever, I am grateful to staff in fertility clinics, and at the HFEA itself, for their effort in getting this information collected, corrected, analysed and published.

A handwritten signature in black ink that reads "Lisa Jardine".

Professor Lisa Jardine CBE
Chair

Summary

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. Each year, around 60,000 fertility treatments are performed in UK licensed clinics.

We aim to publish this report annually and here we present information about cycles started in 2010 and 2011. We also highlight some short and longer term trends.

The overall pregnancy and live birth rates have remained steady 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 HFEA remains committed to presenting accessible and useful information about the activities we licence. We will therefore keep monitoring these, and other trends.

Key points:

- Almost all women receiving fertility treatment in 2011 were doing so with the aim of conceiving a child immediately. Two thirds of the women were aged 37 and under. Six out of 10 IVF cycles and eight out of ten DI cycles were funded privately.
- The most common number of embryos transferred in each treatment cycle is two. The proportion of embryo transfers which are electively of only one embryo decreases as women's age increases. Most embryos are transferred when they reach cleavage stage, except in elective single embryo transfer (eSET) procedures, when more are transferred at the blastocyst stage.
- The pregnancy rate has remained steady between 2010 and 2011, but the multiple pregnancy rate has decreased.
- After a double blastocyst transfer a much higher percentage of pregnancies confirmed by ultrasound were of two or more fetuses, approaching half in women aged 18 - 34. By receiving eSET this risk is reduced to a similar level of that found in natural conceptions.
- Between 2009 and 2010 the overall live birth rate per cycle started has remained broadly steady, going from 24.1% to 24.5%. During the same time period, the overall multiple birth rate has declined. The HFEA will continue monitoring these figures.
- Frozen transfers overall tend to be less successful than fresh ones, but this trend is reversed in women in older age groups.
- Between 2008 and 2011 significant changes have been made in clinical practice; more embryos are being transferred at the blastocyst stage, and as part of an active decision to only transfer one embryo, even if more are available. The resulting multiple pregnancy rate has shown a decline in the same period.
- The number of IVF cycles performed each year has increased steadily since 1991, and in 2011 was over 60,000. The live birth rate after IVF has increased from 14%, to a quarter by 2010.

Background

About this report

In this report we present key information about the patients treated, the different treatments used and the pregnancy rates for treatment cycles carried out in 2011, plus the birth rates for cycles carried out in 2010.

How we gathered the data

Clinics are required by law to provide information to the HFEA Register about all licensed fertility treatments they carry out.

The HFEA Register 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 the HFEA publishes 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 12 December 2012 unless otherwise stated¹. Before publication, we carefully check the data, and ask the clinics to confirm its accuracy, for which they remain responsible.

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

We are currently undertaking a large piece of work to improve the area of the Register which contains information regarding egg sharers and egg donors. As this work is on-going we do not think that it is appropriate to publish figures from this part of the Register at this time. We plan to make these figures available as soon we can once this work is complete, as we know how important they are to patients, patient groups and clinics.

Revisions policy

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

Next publication date

Autumn 2013.

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).

¹ See accompanying data sheet.

Contact us regarding this publication

Media: press.office@hfea.gov.uk

Statistical: suzanne.hodgson@hfea.gov.uk

Acronyms, abbreviations and glossary of frequently used terms

Our website, www.hfea.gov.uk, provides information about individual clinics, the fertility treatments available and a full glossary of terms.

Acronym/Word	Meaning
DET	Double Embryo Transfer – when two embryos are transferred to the woman’s uterus at the same time.
DI	Donor Insemination. This is a broad term covering fertility treatment using donor sperm where fertilisation takes place inside the woman’s body, unlike in IVF. Instead, donor sperm is introduced to the woman’s uterus (IUI), cervix (ICI), or vagina (IVI).
eSET	Elective Single Embryo Transfer – when a woman opts to have one embryo transferred at a time even though she may have more available. This is done to reduce the risk of multiple births.
ICSI	Intra-Cytoplasmic Sperm Injection. For some IVF procedures, fertilisation involves a specialised technique known as ICSI. In ICSI, a single sperm is injected directly into the woman’s egg.
IUI	Intra Uterine Insemination, a form of DI where the man’s sperm is placed directly into the woman’s uterus
IVF	In Vitro Fertilisation. Patient’s eggs and her partner’s or donor’s sperm are collected and mixed together in a laboratory to achieve fertilisation outside the body. The embryos produced may then be transferred into the female patient.
LBR	Live Birth Rate - the percentage of cycles started in one year which resulted in a live birth.
Live birth	A birth event of at least one baby showing some signs of life.
MBR	Multiple Birth Rate – the percentage of live births which were of more than one live baby.
Miscarriage	The loss of a pregnancy before the foetus is 24 weeks old.
Multiple birth	A birth event where more than one live baby is born.
PGD	Pre-implantation Genetic Diagnosis – used in conjunction with IVF, where one or two cells are removed from an embryo to be tested to be tested for specific hereditary disorders. Unaffected embryos will be selected and transferred.
Still birth	Birth of a baby after 24 weeks gestation showing no sign of life.

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 in development by the National Institute for Health and Clinical Excellence recommend that a couple where the woman is under 36 should be offered further clinical assessment after one year of trying to conceive and after 6 months for couples where the woman is 36 and over.

After pregnancy, infertility is the most common reason for women aged 20–45 to see their GP.

Is it a common problem?

Fertility problems are estimated to affect one in six or one in seven couples in the UK – approximately 3.5 million people. Most couples (about 84 out of every 100) who have regular unprotected sexual intercourse (that is, every 2 to 3 days) will get pregnant within a year. About 92 out of 100 couples who are trying to get pregnant do so within 2 years.²

What do you mean by fertility treatment?

We have used the phrase fertility treatment to cover the medical techniques which assist women to have children.

Types of fertility treatment include IVF (in vitro fertilisation), ICSI (intra-cytoplasmic sperm injection) and Donor Insemination (DI).

In IVF, a woman's eggs are removed from her ovaries by a doctor and are combined with sperm in the laboratory; if embryos then develop, some or all of them will be returned to the woman's body, where they will hopefully lead to a pregnancy. In this publication we use 'IVF' to cover both 'standard' IVF and ICSI, unless otherwise specified.

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; therefore it is 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. 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 of all the licensed treatments performed each year in the UK fertility sector. The data is supplied by the clinics performing the treatments and they remain responsible for its accuracy.

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

Unless otherwise stated, all the rates we quote are for one calendar year.

² National Institute for Health and Clinical Excellence (NICE). Fertility: assessment and treatment for people with fertility problems – (published draft for stakeholder consultation). London: National Collaborating Centre for Women's and Children's Health; 2012. www.nice.org.uk/nicemedia/live/12157/59278/59278.pdf

Live birth rates per cycle started: This is the percentage of cycles started in one year which resulted in a live birth.³

Pregnancy rates per embryo transfer: This is the percentage of embryo transfer procedures, which resulted in the woman becoming pregnant (as confirmed by ultrasound). Commonly we want to compare pregnancy rates after different types of embryo transfer (for instance, elective single embryo transfer with double embryo transfer, or blastocyst with cleavage) which is why we use the pregnancy rate per embryo transfer.⁴

Multiple pregnancy rate: This is the percentage of all pregnancies (confirmed by ultrasound) which are of more than one fetus.⁵

Multiple birth rate: This is the percentage of all live births which were of more than one live baby.⁶

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.

There are different ways to account for the outcomes of a 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 2010 live birth data only being published now?

Results are published according to the year in which the treatment cycle was started, and the clinics then have around one year to report the results to us. This means that for a cycle started in December 2010, we may not know the outcome until December 2011. Once submitted, data is checked, which takes time but is essential to ensure the figures are accurate.

³ To calculate this divide the number of live birth events resulting from cycles started in that year, by the number of cycles started in that year. This is multiplied by 100 to give a percentage.

⁴ 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.

⁵ To calculate this divide the number of pregnancies which have been confirmed as having 2 or more foetal sacs (multiple pregnancies), by the number of pregnancies which have confirmed 1 or more foetal sacs (all pregnancies). This is multiplied by 100 to give a percentage.

⁶ To calculate this divide the number of live birth events which included 2 or more babies showing some sign of life at birth (multiple births), by the number of births which involved 1 or more babies born showing some sign of life at birth (all births). This is multiplied by 100 to give a percentage.

Where can I get more information about individual clinics?

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

Why don't you produce clinic league tables?

It is not 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 the under 40 age groups 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 next year, the number of cycles stays the same, 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 one (it appears the rate has dropped dramatically). Because the 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 most of these cases, and in particular where the numbers are less than 5 and patient identifiability becomes a risk, we have aggregated the 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.

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 suzanne.hodgson@hfea.gov.uk for more information.

Section 1: Overview

► How many fertility clinics were there in the UK in 2011?

In 2011 74 clinics licensed by the HFEA performed IVF treatment and 70 performed DI treatment⁷. As in previous years, the largest number of clinics was in London, see Table 1.

The number of women treated in each region ranged from 1,411 in Wales, to 15,139 in London. This figure is based on the location of the clinic, rather than where women live. Patients can travel to different regions for their treatment, particularly to London, and this partly explains the high number of women treated there.

Table 1: Number of clinics performing IVF and DI, by region, and number of women receiving fertility treatment, 2011

Region	Clinics performing IVF	Clinics performing DI	Women treated ⁸
North East	5	6	1,898
North West	4	4	5,027
Yorkshire & Humber	4	4	3,013
East Midlands	4	5	3,115
West Midlands	7	6	3,321
East of England	5	4	3,248
London	16	16	15,139
South East	11	8	5,163
South West	6	6	2,558
Northern Ireland	2	1	1,412
Scotland	7	6	3,368
Wales	3	4	1,411

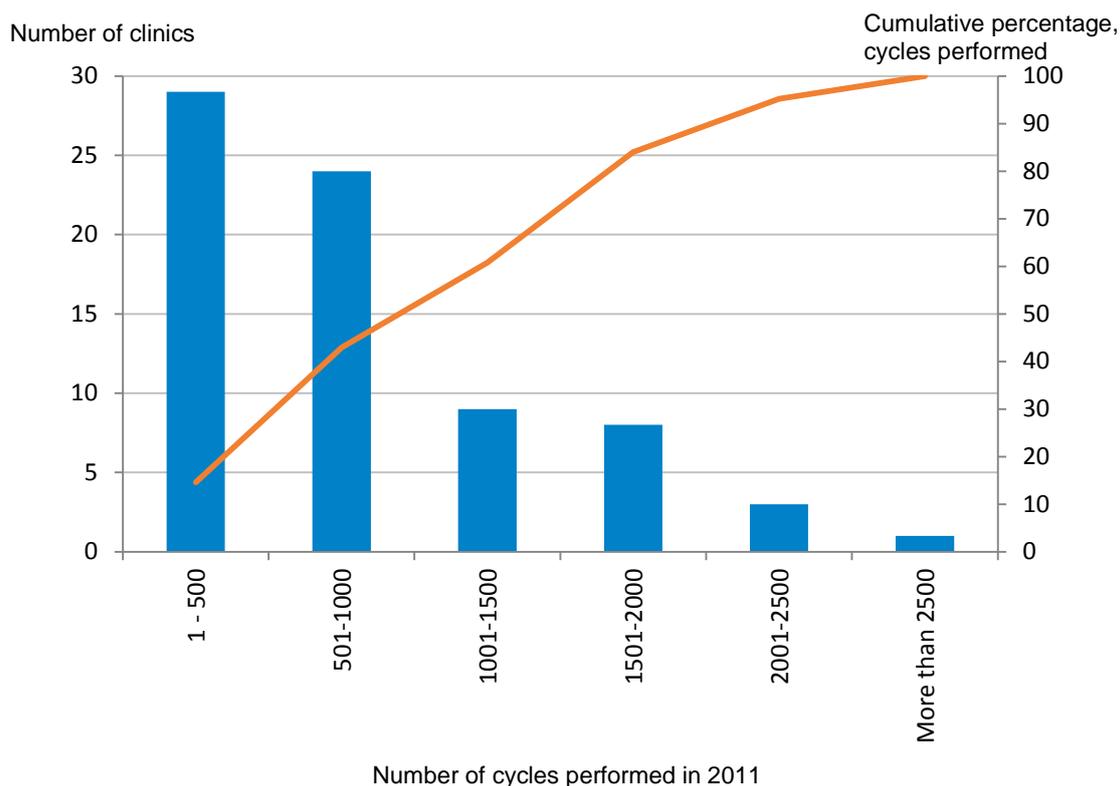
The clinics carried out widely different numbers of treatment cycles, from fewer than 50 IVF cycles in some clinics to over 2,000 IVF cycles performed in others (Figure 1). Around half of the IVF cycles performed in the UK in 2011 were performed in around one quarter of the clinics.

Figure 1 is over the page.

⁷ This does not include clinics only providing Intra Uterine Insemination (IUI) with partner sperm.

⁸ 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, and will have been counted in both. Additionally, women may have had both DI and IVF treatment in one year, and also been counted in both.

Figure 1: Number of clinics performing each number of IVF cycles per year, and cumulative percentage, 2011



► **How many women received fertility treatment?**

In 2011, 48,147 women had a total of 61,726 cycles of IVF or ICSI and 2,087 women had a total of 4,091 cycles of DI.

Of the women who had IVF or ICSI treatment⁹:

- The vast majority, 46,146 (95.8%), started treatment to try to conceive a baby during that cycle of treatment. This is very slightly less than we reported for 2010 (96.6%)
- 3.1% were part of an egg sharing agreement or had IVF or ICSI to produce eggs or embryos for donation
- 1% had treatment but did not have a transfer straight away, but stored their eggs or embryos for later use. This might be, for example, where the woman is not well enough for the embryos to be transferred or where 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. This is very slightly more than we reported for 2010 (0.8%)

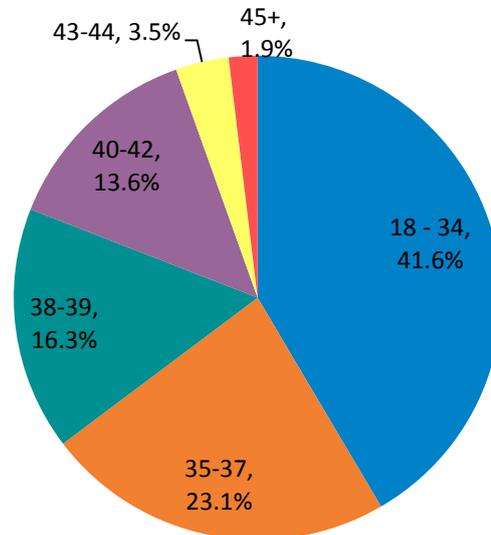
60,473 of the cycles were performed to conceive a child now. In 2010, 57,957 cycles of IVF or ICSI were performed for treatment, and 3,911 of DI. 2011 therefore saw an increase of 4.3% and 4.6% in the number of IVF and DI cycles respectively.

⁹ Sum is not equal to 100% as some women will have undergone more than one type of treatment in a year and therefore been counted twice in the breakdown, but not in the total.

► How old were the women receiving treatment?

The majority – almost two thirds – of women who received IVF treatment were aged 37 and under. There has been no change in the age distribution of women receiving IVF treatment since last year.

Figure 2: Percentage of all IVF cycles performed, by age group, 2011



Women having IVF treatment were on average 35.0 years old. The average length of time patients reported trying to conceive was 4.6 years (range 0 to 20 years).

Women having DI treatment were on average 35.2 years old and had been trying to conceive for on average 4.0 years (range 0 to 20 years).

For information on how the ages of women receiving treatment has changed over time, please see Figure 20 and Figure 22.

► Who funded the treatment?

A minority, four in ten (40.3%) of IVF treatment cycles was funded by the NHS in 2011. The majority, six in ten (59.7%) were funded privately. In 2010, the figures were similar: 40.6% and 59.4% for NHS and private funding respectively.

For DI, an even smaller proportion (17.9%) of cycles was funded by the NHS in 2011, slightly less than in 2010 (18.9%). Over eight in ten DI cycles (82.1%) were funded privately in 2011.

Key points: Almost all women receiving fertility treatment in 2010 were doing so with the aim of conceiving a child immediately. The majority, two thirds, of these women were aged 37 and under. The majority of both IVF and DI treatment cycles were funded privately.

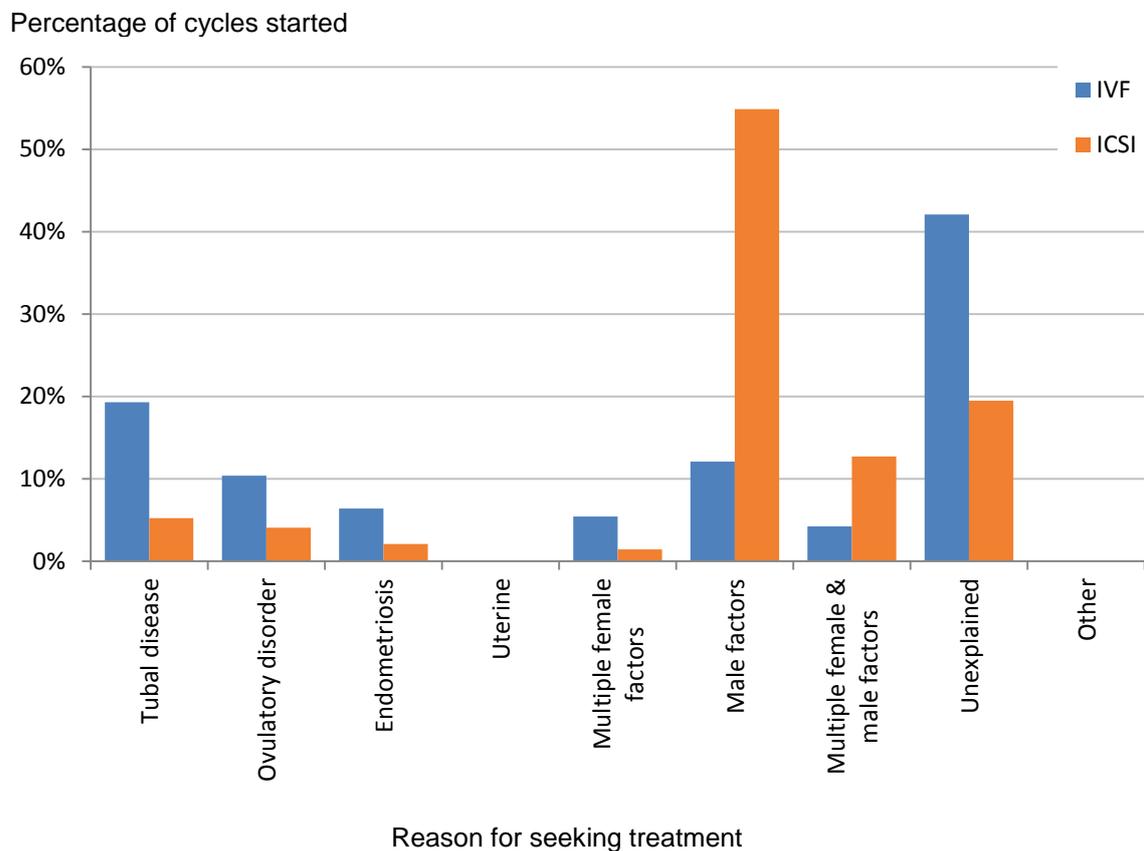
► What types of infertility were treated with IVF or ICSI?

When patients register with a clinic, information about the type of infertility they are seeking treatment for is collected. The data here is split into those receiving IVF and those receiving ICSI.

About half (52.9%) of fresh IVF treatments in 2011 involved ICSI, a similar proportion to that seen in recent years (51.9% in 2010, 52.1% in 2009). Because ICSI involves the injection of a single sperm into an egg, it can be used in male factor infertility, for instance 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 information is recorded at the *start* of a woman or couple's treatment and it is possible that further problems become apparent during treatment (or in the case of unexplained infertility, a cause may be uncovered later on).

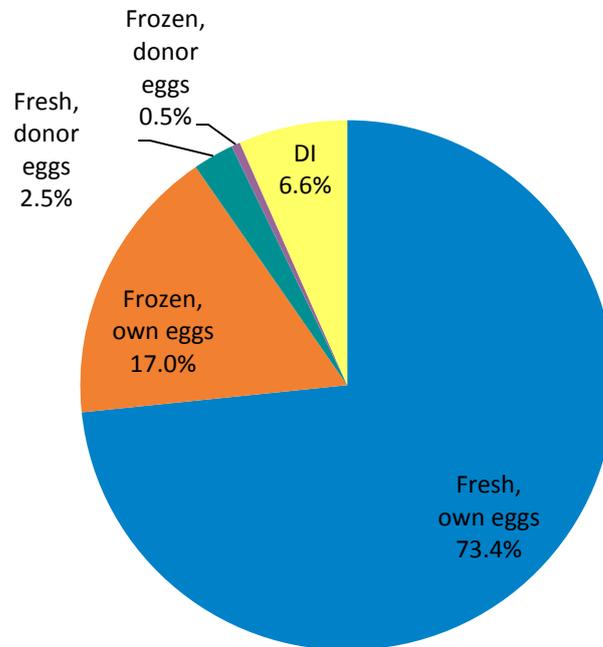
Figure 3: Percentages of couples seeking standard IVF or ICSI treatment, by the reason they sought treatment, 2011



► **What types of cycles were started?**

In the majority of treatment cycles – almost three quarters – the woman’s own freshly collected eggs were used. A smaller number use embryos created from the woman’s own eggs, which had been frozen previously and then thawed just before transfer. The distribution is almost exactly the same as that seen in 2010.

Figure 4: Proportion of treatment cycles started, IVF types and DI, 2011

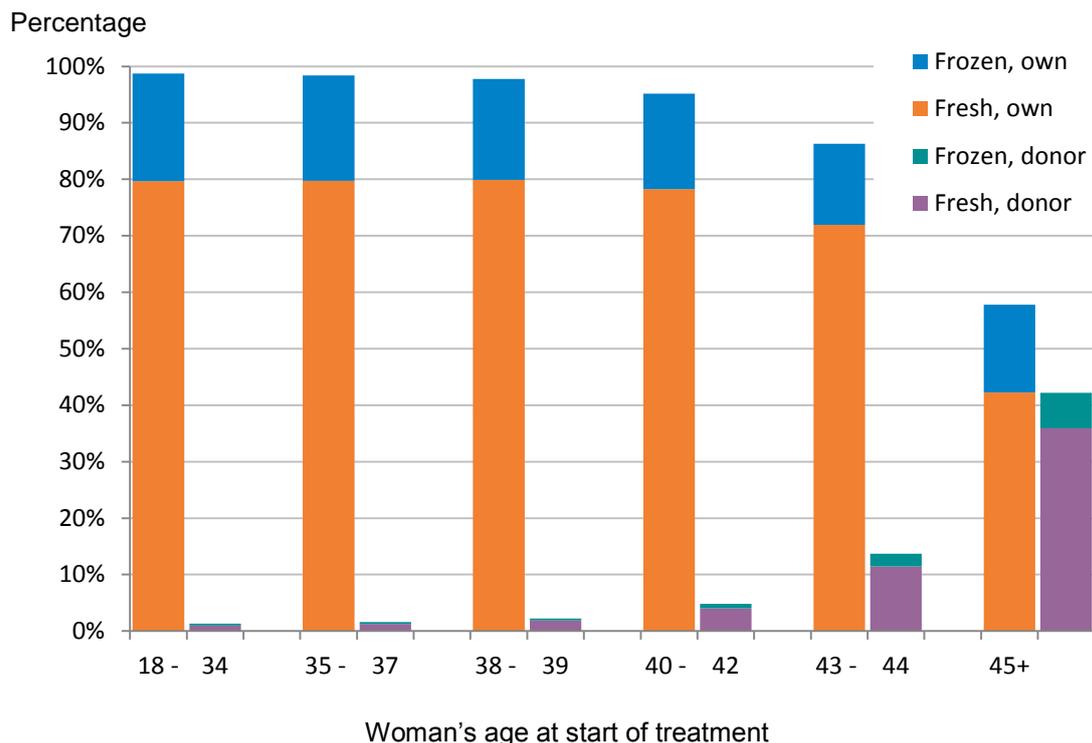


► **How did the age of the women being treated affect which IVF treatment they received?**

The type of IVF cycle (fresh or frozen, donor or patient’s own eggs) varied by the women’s age, see Figure 5. As noted above, the majority of women used their own eggs, but here we see that the proportion of women using donor eggs increases with age. This distribution has not changed since 2010.

Figure 5 is over the page.

Figure 5: The distribution of different types of treatment women have, by age, 2011



Fresh and frozen cycles

The number of both fresh and frozen IVF cycles performed has increased again from 2010 to 2011. In our last report, we noted that frozen cycles saw a bigger year on year increase than fresh ones between 2009 and 2010, and this trend has been repeated in 2011. For cycles using a woman's own eggs, frozen cycles increased by 7.0% compared to 3.4% for fresh ones, and so again take up a slightly greater proportion of all transfers in 2011 than in 2010. This may be because of the increase in women receiving eSET and therefore having good quality embryos available to freeze after treatment and use in a subsequent cycle.

Table 2: Number of fresh and frozen cycles started (own eggs), 2010 and 2011

Proportion of cycles	2010		2011	
	Fresh	Frozen	Fresh	Frozen
	81.2%	18.8%	80.7%	19.3%

Stimulated and non-stimulated cycles

Some fertility clinics now offer natural IVF cycles. This is when no stimulatory drugs are used. Of the 47,003 fresh cycles performed in 2011 using a woman's own eggs, 596, 1.3%, were natural. This is a slight increase in the proportion for 2010, when the figure was 0.8%.

Of the 4,091 DI cycles performed in 2010, around half (51.9%) did not use stimulatory drugs. This represents only a slight change since 2009, when 49.3% 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 specific genetic disorders 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

Huntingdon's disease. An up to date list of all the disorders for which PGD is allowed can be found on our website at www.hfea.gov.uk/cps/hfea/gen/pgd-screening.htm

17 clinics reported providing this treatment in 2011. A total of 435 of the IVF treatment cycles started in 2011 involved the use of PGD, an increase on 2010 figures (Table 3). We have provided figures for 2010 here so as to include the live birth rate. In our last report we gave figures from 2009 when the live birth rate for treatment using PGD was 29.9% so this represents a slight increase.

Table 3: Pre-implantation genetic diagnosis, cycles and results in 2010

Number of cycles	383
Number of patients	311
Number of births	121
Number of babies	135
Live birth rate, per cycle started	31.6%

Treatment cycles involving donated sperm

For the results of treatments using donated sperm, please see Table 15 and Table 16.

Donor Insemination – 70 clinics performed DI treatment in 2011. The number of DI cycles performed in the UK has increased between 2010 and 2011 (Table 4). See Table 16 for live birth results.

Table 4: Number of donor insemination cycles, 2010 and 2011

Year of treatment:		2010	2011
Age	18 – 34	1,620	1,749
	35 – 37	892	873
	38 – 39	585	614
	40 – 42	578	579
	43 – 44	169	193
	45 +	67	80
	All ages	3,911	4,091

Donated Sperm – A total of 2,212 fresh IVF cycles started in 2011 involving the use of donor sperm, an increase of 12.4% from 2010.

Table 5: Donated sperm used in IVF treatment, cycles and patients, 2010 and 2011

Year of treatment:	2010	2011
Number of cycles	1,968	2,212

Section 2: Embryo Transfers

► How many embryos were transferred during 2011?

A total of 89,648 embryos were transferred during the course of fertility treatment which started in 2011:

- 30,337 fresh embryos were transferred during IVF treatment
- 40,340 fresh embryos were transferred during ICSI treatment¹⁰
- 17,635 thawed embryos which had previously been frozen were transferred

► How many embryos were transferred in each cycle?

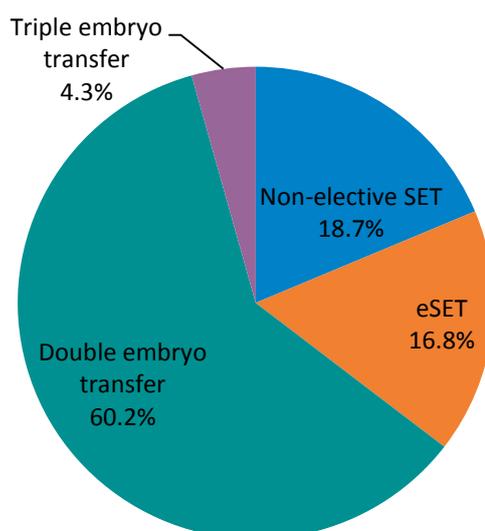
For women under the age of 40, one or two embryos can be transferred each time. For women aged 40 or over, a maximum of three can be used.

The number of embryos is restricted because of the risks associated with multiple births. 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.

Figure 6 shows that in 2011, as in 2010, two embryos was still the most likely number to be transferred in each cycle; however, this proportion has decreased since 2010. Only around 1 in 6 women overall (16.8 %) received an eSET, and slightly more (18.7%) received a non-elective SET (i.e. only one embryo was available to transfer). For information relating to only fresh cycles, please see our accompanying data sheet.

Figure 6: Proportion of all embryo transfers (fresh and frozen), by number of embryos transferred, 2011



¹⁰ 401 embryos were transferred during treatment involving both IVF and ICSI.

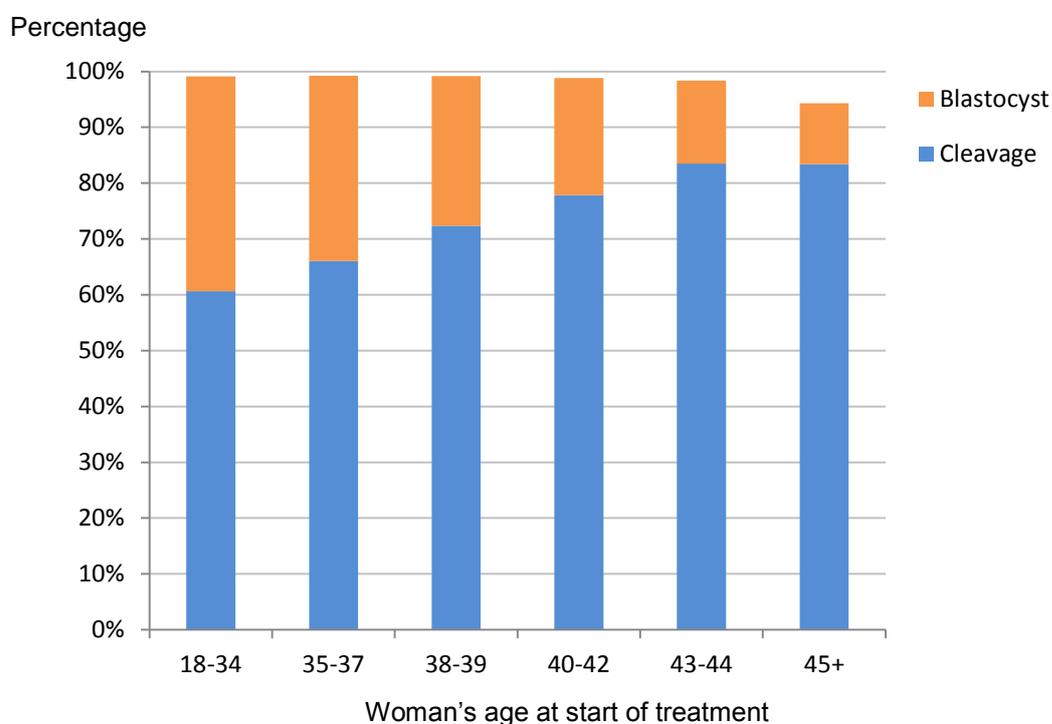
► Does the number of embryos transferred differ for cleavage or blastocyst transfers?

Blastocysts are embryos which are grown in the laboratory incubator for five to six days before they are transferred into the womb.

Blastocyst transfer has been increasing in the UK over the past 4 years; previously almost all embryos were transferred after two to three days in the incubator, when they are known as cleavage stage embryos. Not all embryos will develop into blastocysts, and the embryologist will use their judgement to decide whether to continue culturing embryos beyond the cleavage stage, or transfer them then.

Overall (Figure 7), younger women had a higher proportion of blastocyst transfers than older women. The proportion of cleavage stage transfers gradually increases with age¹¹.

Figure 7: Percentage of fresh embryo transfers involving cleavage or blastocyst stage embryos, 2011

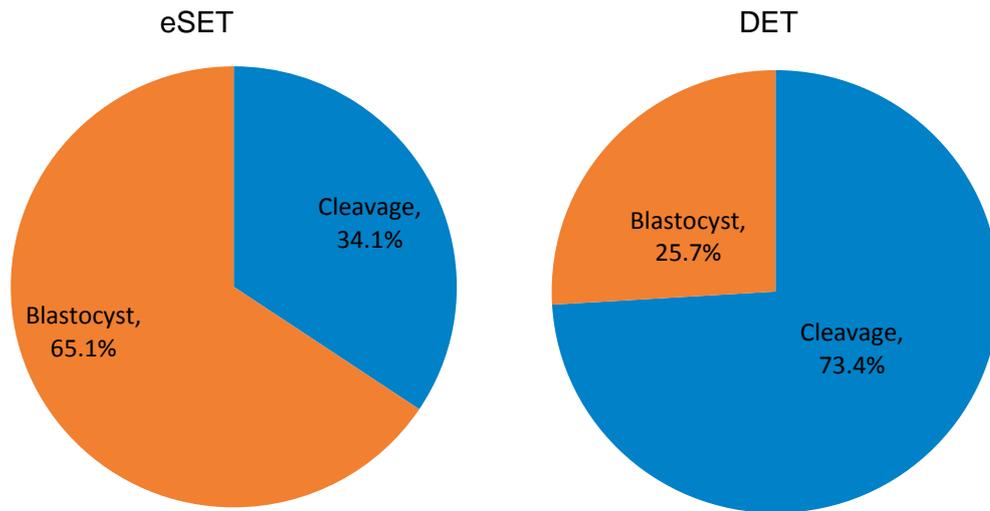


We noted in our last report that the picture is slightly different with eSETs and overleaf can see that nearly two thirds of those transfers (65.1%) were of blastocysts, an increase of around 8 percentage points on 2010. However, where two embryos are transferred nearly three quarters of transfers are of cleavage stage embryos, a similar proportion to that seen in 2010.

Figure 8 is over the page.

¹¹ Note that the bars do not sum to 100%, most noticeably in the older age groups; this is because a small number of embryos are transferred at day 1 (when it is called 2PN stage), or day 4 (morula stage).

Figure 8: Embryos transferred, as a percentage of all fresh embryos transferred, by whether the embryo was cleavage or blastocyst, 2011

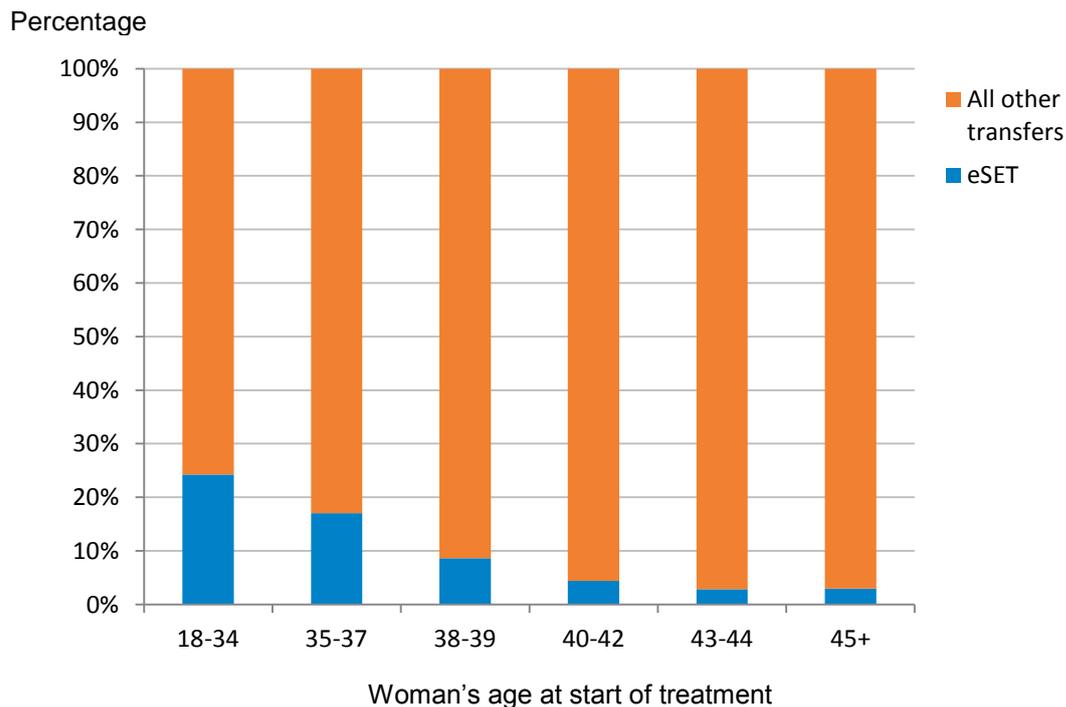


It is important to note that while these two pie charts are the same size in order to show the differing proportions over three times as many DETs are performed than eSETs.

► **What proportion of transfers were elective SET, and how did this vary by the age of the woman?**

The women who have the best chance of becoming pregnant are usually those aged 37 and under, who are on their first or second attempt at IVF. These are the women who are most likely to decide to have only one embryo transferred. Figure 9 below shows that the women in the age groups 18 to 34 and 35 to 37 have the highest proportion of eSETs and we can see that this decreases with age. For more information on how eSET has changed recently, see Figure 14.

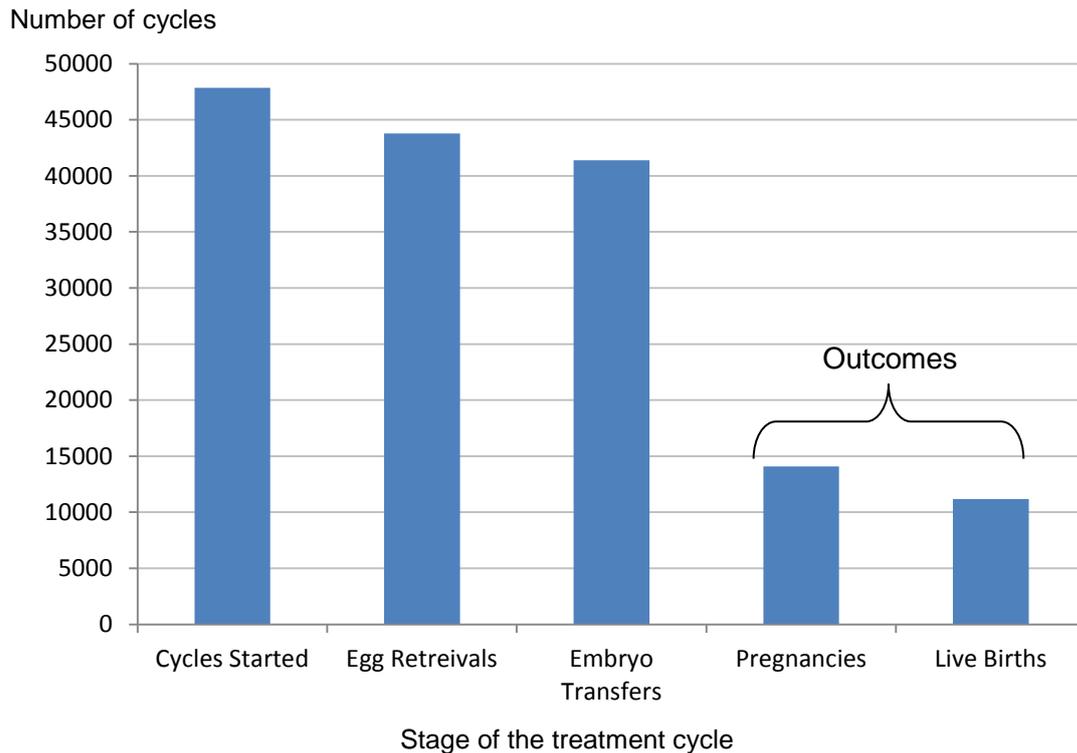
Figure 9: eSETs as a proportion of all embryo transfers performed, 2011.



► 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 results in a live birth. These figures relate to fresh cycles started with the intention of conceiving immediately in 2010. Outcomes have been added to give an indication of the proportion of cycles which progress to pregnancy and birth. 2010 data is used so we can include the live births.

Figure 10: Number of fresh IVF treatment cycles started which reached each stage of the treatment process, 2010



The most common reason identified for a cycle to fail before the egg retrieval stage is because the woman's ovaries don't respond enough to treatment (36.0%). A further 5.9% fail at this stage because the woman's ovaries respond too much to treatment, which can be dangerous as it could lead to Ovarian Hyperstimulation Syndrome (OHSS). The remainder (58.1%) 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 (43.0% of cycles abandoned after egg retrieval, but before transfer, 871 patients). This is a decrease on that seen in 2010 (47.0%). 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 the woman's own fresh eggs make up over three quarters of all IVF treatment cycles performed each year. In this publication therefore we give more detailed results for these common treatments. The live birth figures are from cycles started in 2010, and the pregnancy figures are from cycles started in 2011.

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

A total of 13,306 pregnancies were reported as a result of IVF treatment which started in 2010 and a total of 13,703 pregnancies were reported as a result of IVF treatment which started in 2011.

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

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

Full live birth rates by age, treatment type and clinic are published regularly and in more detail on [Choose a Fertility Clinic](http://www.hfea.gov.uk) on our website (www.hfea.gov.uk).

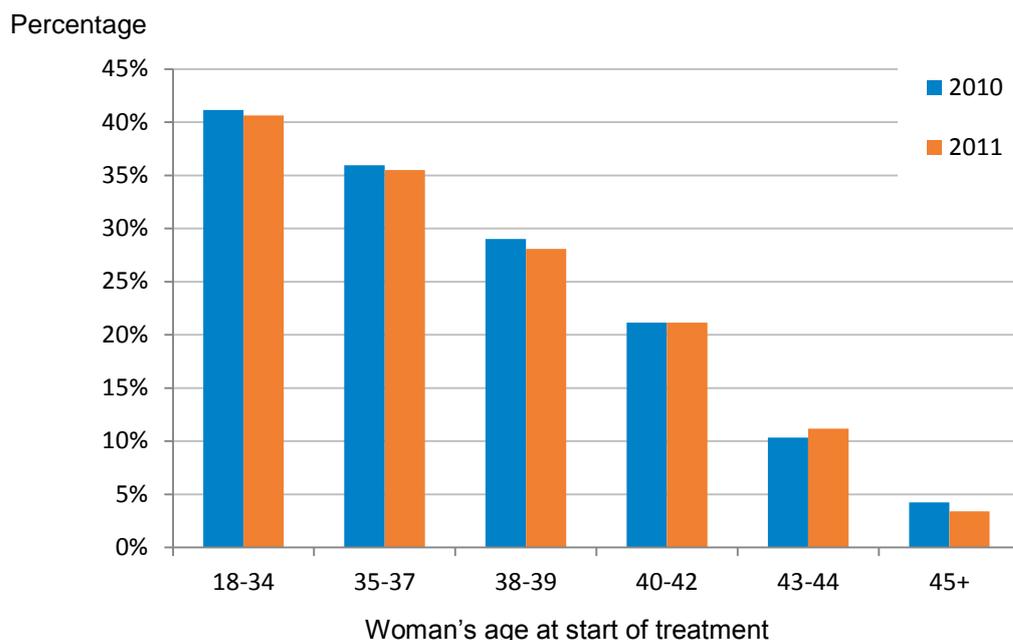
The pregnancy rate for all women treated with embryos created from their own fresh eggs has remained largely steady between 2010 and 2011 (Table 6 and Figure 11, overleaf). Although drops are seen, these are less than one percentage point.

Table 6: Pregnancy rate (per embryo transfer) for patients receiving IVF treatment using their own fresh eggs, 2010 and 2011.

	Year of treatment:	2010	2011
Age	18 – 34	41.1%	40.6%
	35 – 37	35.9%	35.5%
	38 – 39	29.0%	28.1%
	40 – 42	21.2%	21.2%
	43 – 44	10.3%	11.2%
	45 +	4.2%	3.4%
	All ages	34.1%	33.7%

Figure 11 is over the page.

Figure 11: Pregnancy rate (per embryo transfer) for patients receiving IVF treatment using their own fresh eggs, 2010 and 2011



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

Table 7 shows that the pregnancy rate tends to be higher when blastocysts are transferred, be it one (eSET) or two.

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

As before, we must note that blastocyst transfer is not suitable for every woman and that women who have embryos cultured to blastocyst stage and are able to elect to only transfer one of these may be those who are more likely to get pregnant anyway. We saw in Figure 7 that younger women were more likely to have a blastocyst transfer.

Table 7: Pregnancy rate (per embryo transfer), by stage and number of embryos transferred, 2011

	No. of embryos:	eSET		Double embryo transfer	
		Cleavage	Blastocyst	Cleavage	Blastocyst
Age	18 – 34	31.7%	50.4%	38.4%	50.5%
	35 – 37	24.1%	45.7%	33.0%	48.4%
	38 – 39	25.3%	40.6%	25.4%	44.3%
	40 – 42			18.2%	33.8%
	43 – 44	8.6%	34.0%	6.8%	25.6%
	45 +				
	All ages	28.5%	48.3%	31.3%	46.1%

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 all develop at one time in the womb. The multiple pregnancy rate is the percentage of pregnancies confirmed by ultrasound which were multiple pregnancies.

The overall multiple pregnancy rate has decreased between 2010 and 2011 (Table 8). The rate of decrease is not as great as we have seen in previous years since the introduction of the multiple births policy¹². It is notable that the rate of increase for eSETs has also tailed off (see Figure 14). For a closer look at the multiple pregnancy and eSET rates since 2008 see the Short term trends section. The apparent 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. We saw a similar increase in the 40-42 age group last year which this year has declined to lower than the 2009 figure (17.0%).

Table 8: Multiple pregnancy rate (% of pregnancies), fresh own eggs, 2010 and 2011

Year of treatment:		2010	2011
Age	18 – 34	23.5%	21.7%
	35 – 37	22.7%	20.4%
	38 – 39	20.1%	20.7%
	40 – 42	18.9%	16.0%
	43 – 44	9.2%	10.2%
	45 +		
	All ages	22.3%	20.6%

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 of pregnancies confirmed by ultrasound were of two or more babies (Table 9, overleaf), but this is affected by the woman’s age, and is even higher in younger women (around a third of pregnancies). Table 9 also shows that transferring **two blastocysts** at one time carries an even higher risk of multiple pregnancy than transferring two cleavage stage embryos.

By receiving eSET, the risk of a multiple pregnancy is similar to that of all conceptions, which is 1.57%¹³.

¹² For information see www.hfea.gov.uk/Multiple-births-after-IVF.html or www.oneatatime.org.uk

¹³ Office for National Statistics, 2011, Statistical Bulletin: Live births in England and Wales by characteristics of birth www.ons.gov.uk/ons/dcp171778_241936.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.

Some research suggests that blastocyst transfers are more likely to result in monozygotic (identical) twins¹⁴. Our figures also suggest this, but the numbers are very small at the moment (hence the aggregated figures). We intend to monitor this as we gather more data.

Table 9: Multiple pregnancy rate (% of pregnancies), fresh own eggs, by stage and number of embryos transferred, 2011

Stage:	Cleavage stage embryo		Blastocyst stage embryo		
	Transfer type:	eSET	Double	eSET	Double
Age	18 – 34	0.7%	32.6%	2.2%	47.1%
	35 – 37		24.0%		37.2%
	38 – 39		19.8%		32.1%
	40 – 42		12.0%		21.5%
	43 – 44				
	45 +				
All ages	0.7%	26.7%	2.2%	38.9%	

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 13,778 babies were born as a result of IVF treatment using a woman’s fresh, own eggs in 2010, including those born as multiples.

The live birth rate per cycle started has increased very slightly for women of all ages between 2009 and 2010, after a similarly small decline seen between 2008 and 2009. Although the general trend in the live birth rate after fresh transfers has been upward, we do see fluctuations. 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 cycle started, fresh own eggs, 2009 and 2010

Year of treatment:	2009	2010	
Age	18 – 34	32.3%	32.2%
	35 – 37	27.2%	27.7%
	38 – 39	19.1%	20.8%
	40 – 42	12.7%	13.6%
	43 – 44	5.1%	5.0%
	45 +	1.5%	1.9%
All ages	25.2%	25.6%	

¹⁴ Kawachiya, S., et al (2011) Blastocyst culture is associated with an elevated incidence of monozygotic twinning after single embryo transfer *Fertility & Sterility* 95:6, p2140-2142.

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

The multiple birth rate (Table 11) follows the multiple pregnancy rate (Table 8), showing a continuing decline between 2010 and 2011, most notably in the women aged 18 – 34.

In 2008, nearly 1 in 3 births to women aged 18 – 34 were of more than one baby, by 2010, this had been brought down to only 1 in 5. This is due to clinics implementing focussed multiple birth reduction strategies.

Table 11: Multiple birth rate (% of live births), fresh own eggs, 2009 and 2010.

Year of treatment:		2009	2010
Age	18 – 34	24.9%	21.2%
	35 – 37	22.1%	20.3%
	38 – 39	17.7%	16.3%
	40 – 42	14.5%	15.2%
	43 – 44	7.0%	6.0%
	45 +		
	All ages	22.4%	19.8%

Figures are aggregated due to the small numbers involved.

Key points: The pregnancy rate has remained broadly steady between 2010 and 2011, but the multiple pregnancy rate has decreased.

After a double blastocyst transfer a much higher percentage of pregnancies confirmed by ultrasound were of two or more fetuses, approaching half in women aged 18 – 34. By receiving eSET this risk is reduced to a level similar to all conceptions.

Between 2009 and 2010 the overall live birth rate per cycle started has increased very slightly. During the same time period, the overall multiple birth rate has continue to decline. The HFEA will continue monitoring these figures.

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. We term these 'frozen embryos' but they are always thawed before being transferred.

In 2011 there were 11,283 cycles using thawed frozen embryos created from the woman's own eggs and in 2010 there were 10,548, making a 7.0% increase.

In our last report we published the pregnancy rates after frozen embryos were transferred according to the developmental stage of the embryo, blastocyst or cleavage. We do not feel that this currently meets our requirements for data quality and have therefore excluded this.

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

The pregnancy rate after thawed frozen embryo transfers (Table 12) is generally lower than when fresh embryos are transferred (see Table 6). Between 2010 and 2011 the pregnancy rates have increased slightly overall and in the youngest age group. Although there appears to have been a dramatic drop in the pregnancy rate for women aged 45 and over, it is important to note that this difference in absolute terms is only 8 pregnancies fewer after a similar number of transfers performed.

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, 2010 and 2011

	Year of treatment:	2010	2011
Age	18 – 34	25.3%	26.8%
	35 – 37	25.0%	24.6%
	38 – 39	22.0%	23.1%
	40 – 42	18.1%	21.1%
	43 – 44	18.6%	16.9%
	45 +	21.0%	15.3%
	All ages	23.6%	24.7%

► 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). Sharp increases in the individual age groups are likely to be due to the smaller number of outcomes in certain groups. For instance, the change from 10.2% to 14.7% in the 38 – 39 group relates to fewer than 20 more multiple pregnancies.

Table 13 is over the page.

Table 13: Multiple pregnancy rate (% of pregnancies), 2010 and 2011

Year of treatment:		2010	2011
Age	18 – 34	22.6%	18.5%
	35 – 37	19.4%	16.2%
	38 – 39	10.2%	14.7%
	40 – 42	16.4%	19.4%
	43 – 44	19.2%	16.9%
	45 +		
	All ages	19.3%	17.5%

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, on average, women aged 18 – 34 when their treatment starts are more likely to have a baby than those who are older. This has been seen in pregnancies and in live births after fresh embryo transfers (Table 6 and Table 10) and in pregnancies after frozen embryo transfers (Table 12). Table 14 shows that the live birth rate after frozen transfers also follows this trend. Overall there has been an increase in live birth rate between 2009 and 2010.

Table 14: Live birth rate per cycle started, after frozen embryo transfer using woman’s own eggs, 2009 and 2010

Year of treatment:		2009	2010
Age	18 – 34	20.7%	21.4%
	35 – 37	18.4%	20.7%
	38 – 39	18.4%	17.3%
	40 – 42	12.8%	13.9%
	43 – 44	7.1%	11.9%
	45 +	11.3%	15.6%
	All ages	18.1%	19.3%

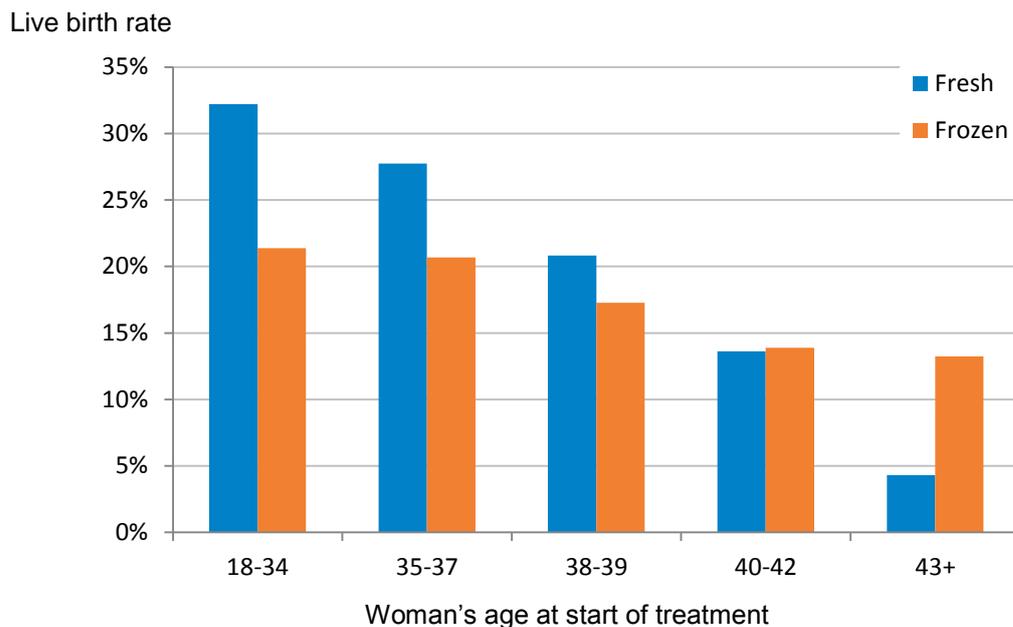
► **How does the live birth rate of frozen embryo transfers compare to that of fresh embryo transfers?**

As noted above, 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) we see that while this trend is true for the youngest groups (where most of the cycles are performed), the trend is reversed in the oldest age groups.

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.

Figure 12 is over the page.

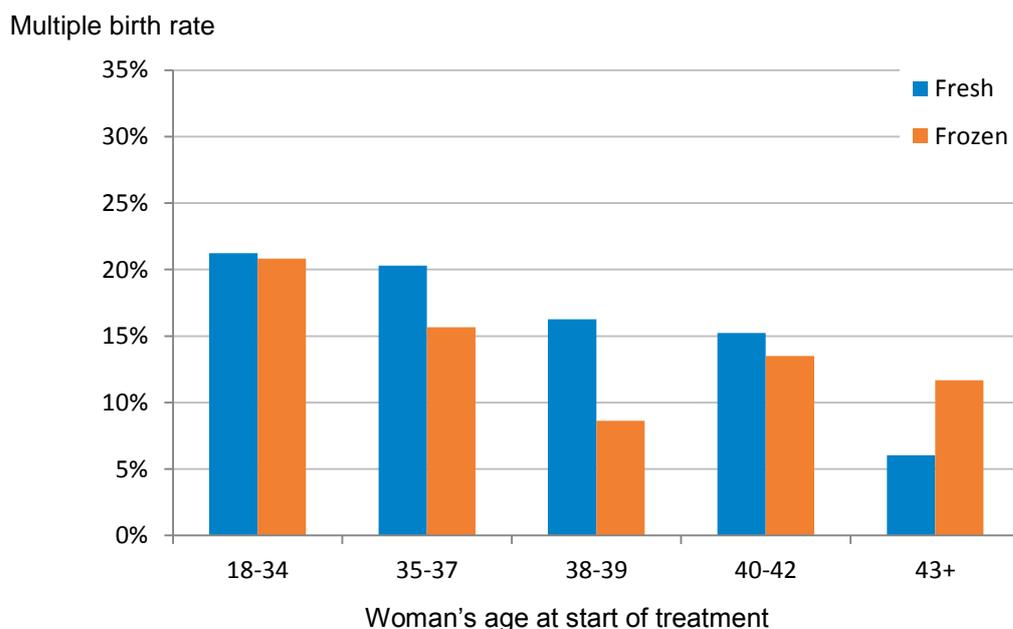
Figure 12: Live birth rate per cycle started, fresh and frozen embryo transfers, 2010.



► **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 (Figure 13). Overall after frozen embryo transfers, the rate is 16.8% of all live births, compared with 19.8% after fresh embryo transfers (both 2010). In this graph the age groups over 43 have been grouped together because of the small numbers involved which can be uninformative when presented separately.

Figure 13: Multiple birth rate (% of all live births) for frozen and fresh embryo transfers, 2010



Key points: Frozen embryo transfers overall tend to be less successful than fresh ones, but this trend is reversed in women in the oldest age groups.

Results – Cycles using donated sperm

Note that because this section focuses on live birth results rather than pregnancies the data is from 2010¹⁵.

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

A total of 1968 cycles of fresh own egg IVF were performed in 2010 using donated sperm. This resulted in 534 births, and 663 babies being born. The overall live birth rate is therefore 27.1%, slightly lower than we reported for 2009 (29.3%).

Table 15: Live birth rate per cycle started, for fresh egg IVF using donor sperm, 2010

Year of treatment:		2010
Age	18 – 34	38.3%
	35 – 37	32.1%
	38 – 39	27.5%
	40 – 42	13.9%
	43 – 44	3.1%
	45 +	
	All ages	27.1%

Figures are aggregated due to the small numbers involved.

► What is the live birth rate for Donor Insemination?

A total of 3,911 cycles of Donor Insemination (DI) were performed in 2010. This resulted in 513 births, and 547 babies being born. Some women receive fertility drugs to boost egg production before the sperm is transferred. We now present these stimulated and unstimulated cycles separately, as the success rates are quite different. The data is available in the accompanying data sheet.

Table 16: Live birth rate per cycle started, for DI, 2010

Year of treatment:		Stimulated	Unstimulated
Age	18 – 34	20.7%	14.6%
	35 – 37	17.1%	11.4%
	38 – 39	11.9%	9.4%
	40 – 42	5.3%	4.7%
	43 – 44		
	45 +		
	All ages	14.8%	11.3%

Figures are aggregated due to the small numbers involved.

¹⁵ As noted in the Background section, in our last report we published data on the number of women taking part in egg sharing arrangements, both those giving 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

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

A total of 561 cycles of IVF were performed in women who registered with a female partner in 2010, just under 100 more than in 2009. This resulted in 175 live births and 215 babies being born. The live birth rate per cycle started was therefore 31.2% a slight increase on 2009 (30.4%).

A total of 1028 cycles of DI were performed in women who registered with a female partner in 2010. This resulted in 141 live births and 152 babies being born. The live birth rate per cycle started was therefore 13.7%, an increase on 2009 (9.9%).

Key points: The number of treatment cycles using donated sperm (both IVF and DI) has increased between 2009 and 2010. Stimulated DI cycles tend to have a higher success rate than unstimulated ones.

Section 4: Trends

Short term trends

In January 2009 the HFEA introduced a policy to promote eSET and minimise the risk 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 multiple birth rate each year, after careful evaluation, and it currently (2013) 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 these shorter term trends.

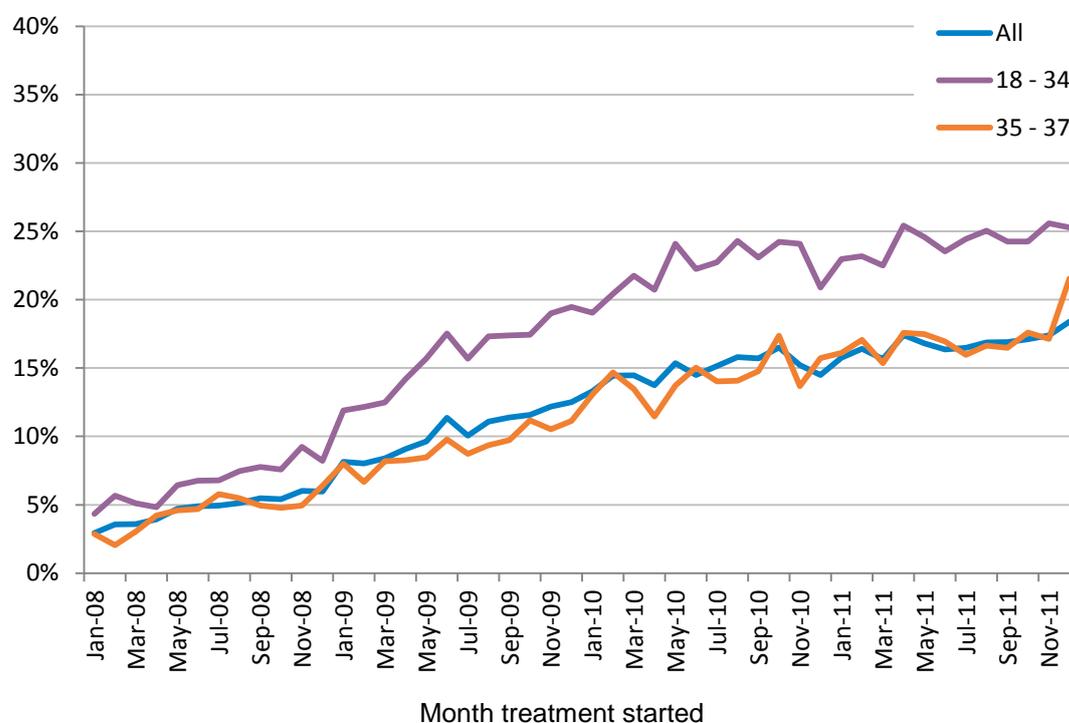
► How has the elective Single Embryo Transfer (eSET) rate changed since 2008?

Since January 2008, the proportion of transfers performed which are eSET has increased across the sector. In 2008, 39,201 embryo transfers were performed, of these 1,883, or 4.8% were eSET. In 2011, 51,103 embryo transfers were performed, 8,569, or 16.8%, of which were eSET.

This increase has been greatest in younger women, particularly those aged 18 – 34, though the rate of increase in this group has tailed off since mid-2010. The professional bodies recommend that women aged 37 or under at the start of treatment (amongst other factors) are best suited to receive eSET¹⁶.

Figure 14: eSETs as a percentage of all embryo transfers, 2008 to 2011

Percentage of embryo transfers eSET



¹⁶ Cutting, R, *et al* (2008) Elective Single Embryo Transfer: Guidelines for Practice British Fertility Society and Association of Clinical Embryologists. Human Fertility. 1-16

► How has the proportion of blastocyst transfers changed since 2008?

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

Figure 15 shows the percentage of all embryos transferred which were at blastocyst stage, and how this has changed, month by month. This has increased from 8.6% of all embryo transfers in January 2008, to 40.5%, in December 2011.

Figure 15: Blastocyst transfers as a percentage of all embryo transfers, 2008 to 2011

Percentage of embryo transfers

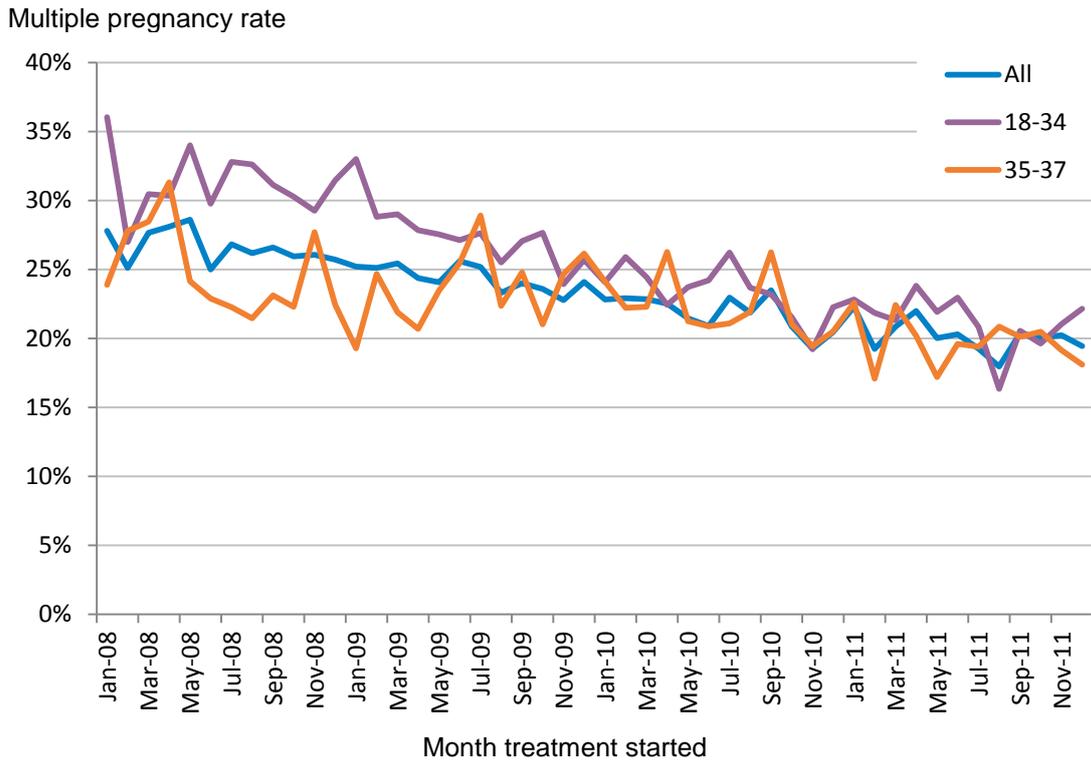


► **How has the multiple pregnancy rate changed since 2008?**

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 to which were multiple pregnancies.

Figure 16 shows the multiple pregnancy rate has decreased between 2008 and the end of 2011. The decrease is most pronounced in women aged 18 - 34, who saw the greatest increase in eSET (Figure 14) during this time. We can see variability from month to month, but overall the trend is downwards, going from 26.6% overall in 2008, to 20.1% overall in 2011.

Figure 16: Monthly multiple pregnancy rate (% of pregnancies), 2008 to 2011



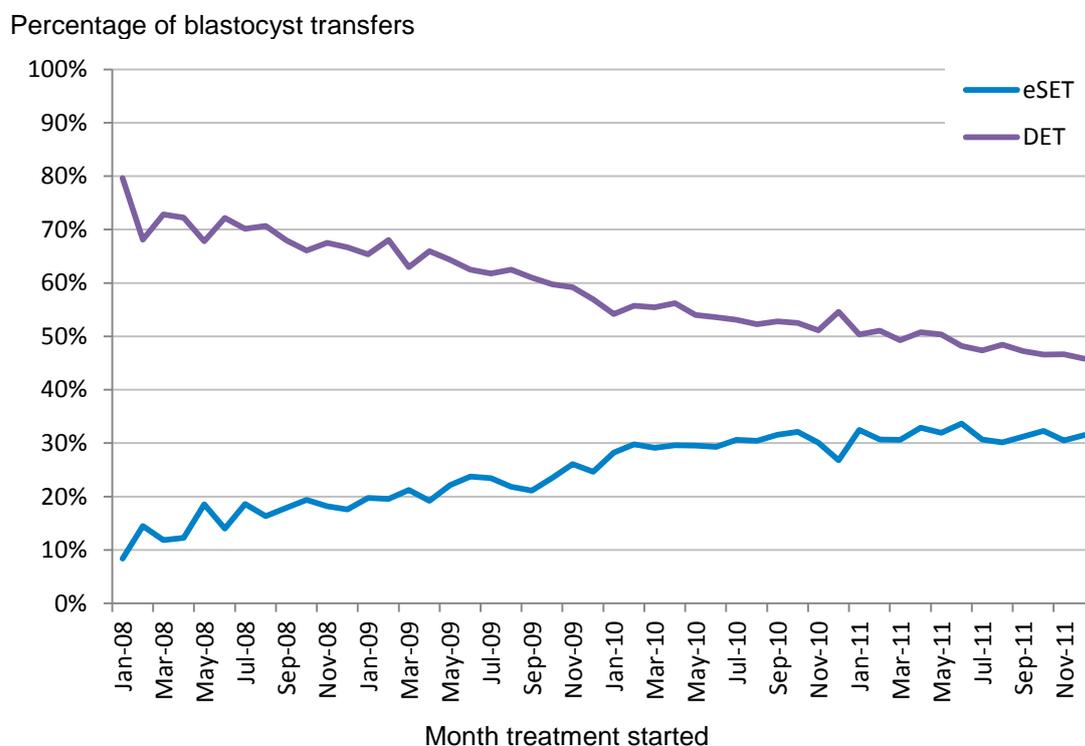
► **How has the proportion of blastocyst transfers which are single or double changed since January 2008?**

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

Figure 17 shows that as the technique has become more widespread (as seen in Figure 15), the proportion of these which are eSET has increased and the proportion which are DET has decreased.

It is important to note with this graph that while the proportion of double blastocyst transfers is decreasing (the purple line), the absolute number continues to increase. You can view the absolute figures in our accompanying data sheet.

Figure 17: Proportion of fresh blastocyst transfers which were eSET or DET, 2008 to 2010



Key points: Between 2008 and 2011 significant changes have been made in clinical practice; more embryos are being transferred at the blastocyst stage, and as part of an active decision to only transfer one embryo, even if more are available. The resulting multiple pregnancy rate has shown a decline in the same period.

Longer term trends

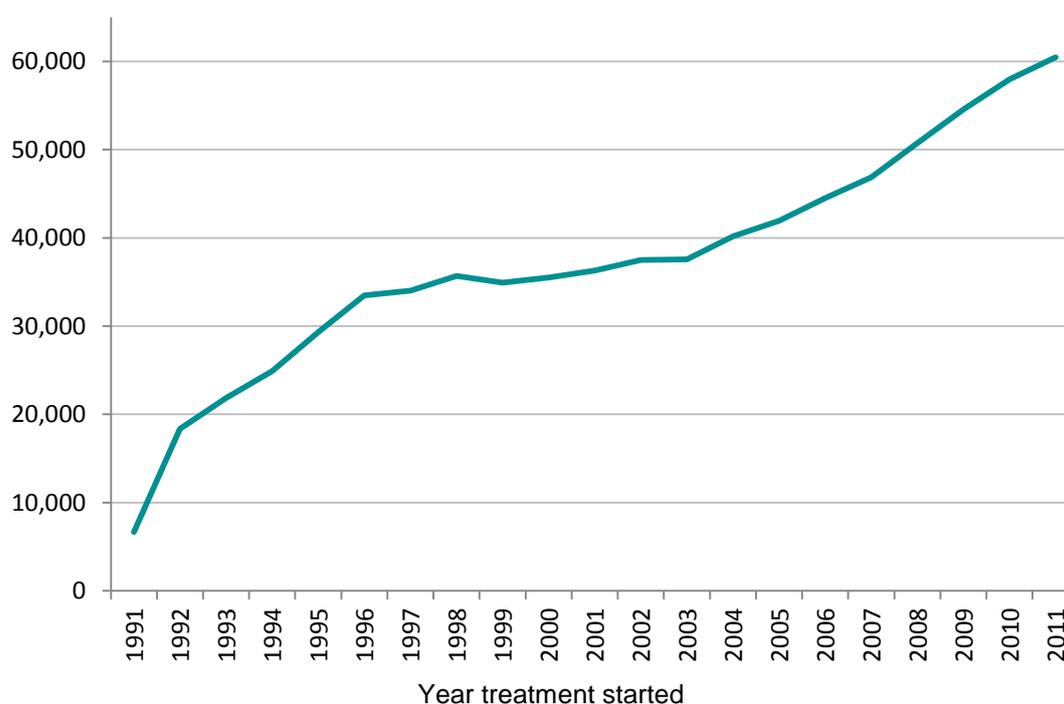
The HFEA has been collecting information about licensed fertility treatments performed in the UK since 1991. We are therefore able to look at some longer term trends in the sector.

► 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, but have continued to increase steadily since around 2003.

Figure 18: Number of IVF cycles performed each year, 1991 to 2011

Number of cycles

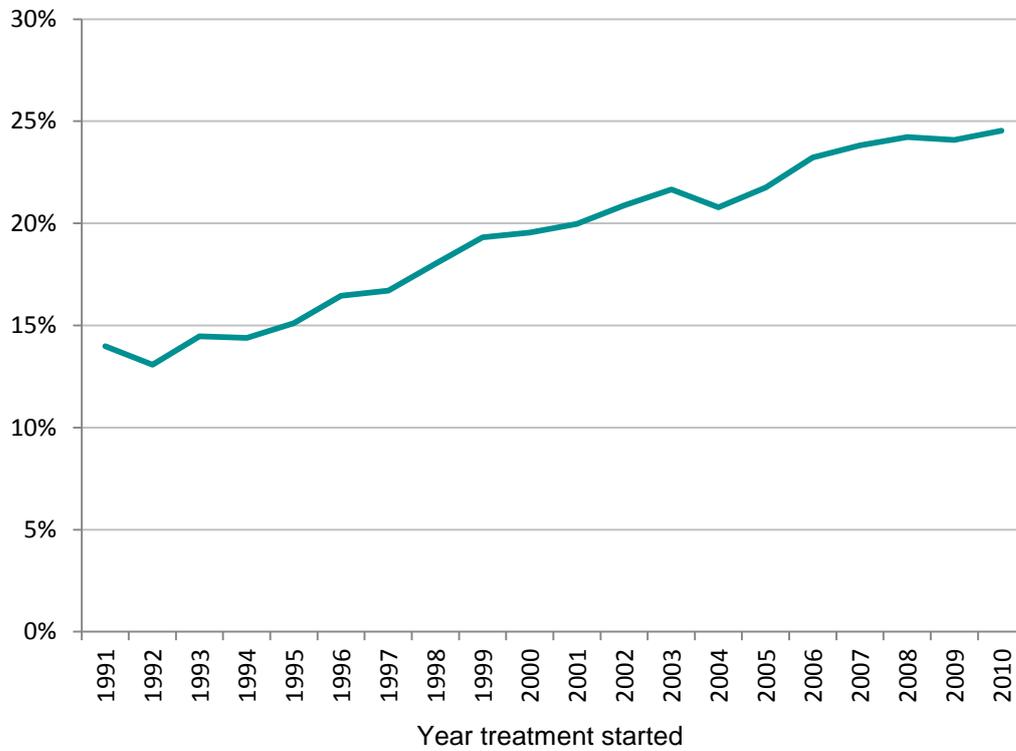


► **How has the live birth rate for IVF cycles changed since 1991?**

The live birth rate has increased fairly consistently since 1991; from 14.0% in 1991 to 24.5% in 2010. 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.

Figure 19: Live birth rate per cycle started, for IVF all cycles, 1991 to 2010

Live birth rate, per cycle started



► **How has the age of the women being treated changed since 1991?**

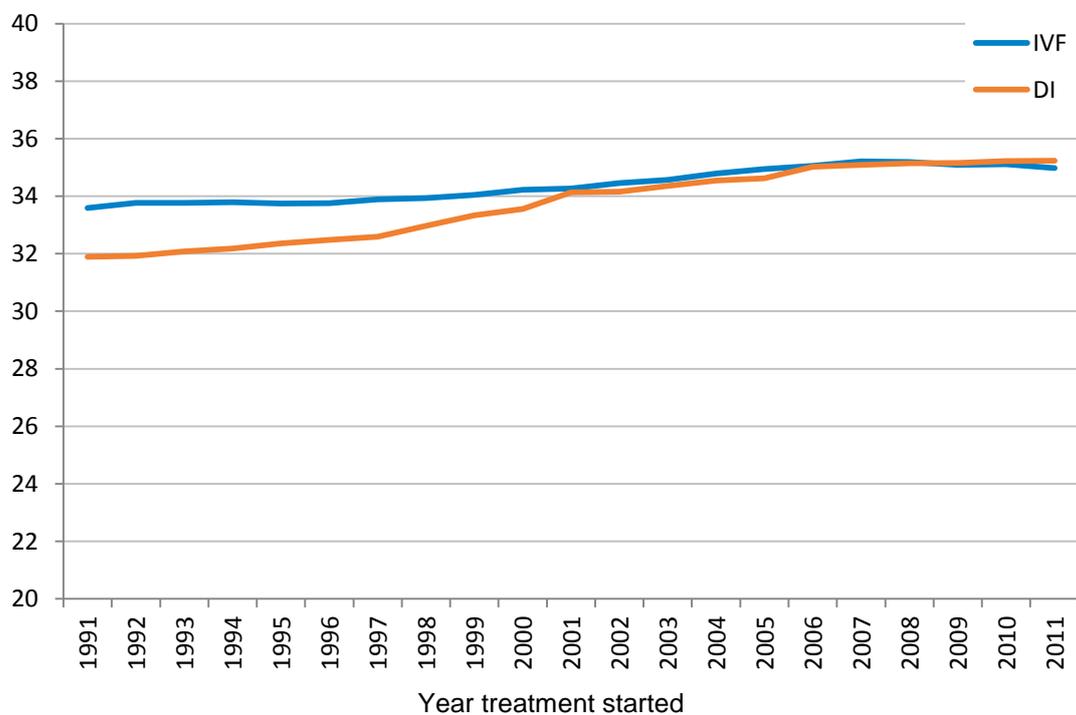
There is a general trend in the UK and elsewhere for women to have children slightly later in life¹⁷ and the longer term trend in the age of women seeking fertility treatment reflects this.

Since 1991 the average (mean) age of women being treated has increased by about 1 and a half years for IVF, from 33.6 to 35.0, but by over 3 years for DI, from 31.9 to 35.2.

However, over the shorter term (since around 2006), the average age for women having either type of treatment has actually remained steady, as Figure 20 shows. Please see the accompanying data sheet for full mean and median figures.

Figure 20: Average age of women treated with fresh IVF and DI, 1991 to 2011

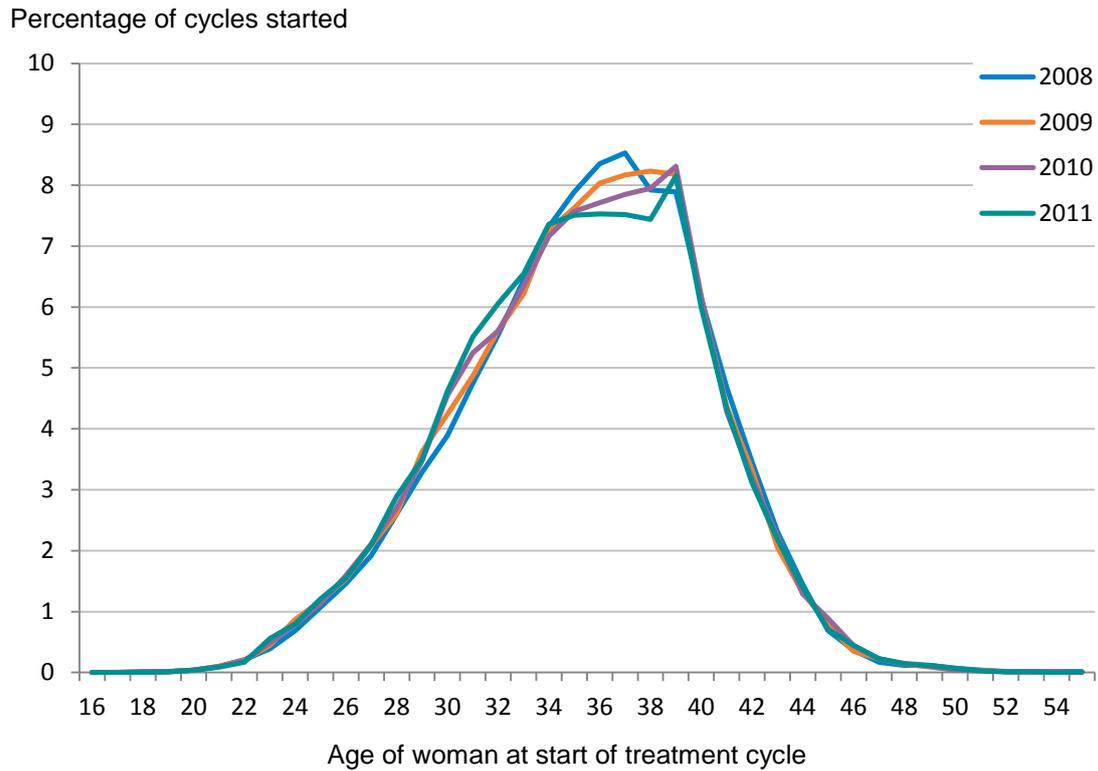
Woman's age at start of treatment



¹⁷ Statistical Bulletin for Births and deaths in England and Wales 2010, Office for National Statistics

In our last publication we showed a figure similar to that below (Figure 21) from 1992 to 2010 showing how the peak of the curve had moved to the right, indicating how the age of women treated had increased. We also noted that there was a spike at age 39 in the most recent year (2010). In the figure below we present the data from the four most recent years (2008-2011) and we can see how that spike developed, and has become more pronounced.

Figure 21: Percentage of cycles started, by women's age at the start of treatment, 2008 – 2011



► **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 5 million babies have been born worldwide after IVF treatment¹⁸. In the UK 201,811 babies have been born after IVF treatment between 1991 and 2010.

► **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, but picked up again and has increased sharply in the 2000s¹⁹ including another big jump 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 2010, 2% of all babies born in the UK were conceived as a result of IVF treatment.

Key points: The number of IVF cycles performed each year has increased steadily since 1991. The age of women seeking fertility treatment has increased since 1991, reflecting the wider trend in society for couples to start their families later, but remained steady over the last 5 years. The live birth rate after IVF has increased from only 14% in 1991, to a quarter by 2010. In 2010, nearly 2% of all the babies born in the UK had been conceived through IVF treatment.

¹⁸ European Society of Human Reproduction and Embryology (2010) ART Factsheet, published online www.eshre.eu/ESHRE/English/Guidelines-Legal/ART-fact-sheet/page.aspx/1061 accessed 08/11/2011.

¹⁹ England and Wales: Office for National Statistics, Births Summary Tables, 2010, <http://www.ons.gov.uk/ons/rel/vsob1/birth-summary-tables--england-and-wales/2010/index.html>; Scotland: General Register Office for Scotland, www.gro-scotland.gov.uk/statistics/theme/vital-events/births/time-series.html; Northern Ireland: NISRA, Live births, 1887 to 2010, www.nisra.gov.uk/demography/default.asp8.htm