



Human  
Fertilisation &  
Embryology  
Authority

# Family formations in fertility treatment 2018

UK IVF and DI statistics for heterosexual, female same-sex and single patients

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## Main points

- Fertility treatment was mostly used by patients in heterosexual relationships (90%) in 2018, followed by patients in female same-sex relationships (6.4%) and single patients (3.2%).
- Single patients and patients in female same-sex relationships used IVF in 57% and 45% of their treatments respectively in 2018, the highest proportion recorded, while remaining treatments were DI.
- IVF birth rates per embryo transferred were highest for patients in female same-sex relationships (31%), followed by patients in heterosexual relationships (23%) and single patients (17%); differences are likely due to age and infertility factors.
- DI birth rates per treatment cycle were highest for patients in female same-sex (15%) and heterosexual (14%) relationships, and lowest for single patients (9%) likely due to age differences.
- Most patients freezing eggs had no partner (55%), followed by patients in heterosexual relationships (44%).
- Patients thawing their own frozen eggs for treatment were most commonly in heterosexual relationships in 2018 (88%).
- NHS-funded IVF cycles were more common for patients in heterosexual relationships (39%) compared to patients in female same-sex relationships (14%) and single patients (6%), varying considerably by nation.
- Heterosexual couples had the highest NHS funding for DI (16%), though they were least likely to use DI (3% of treatments). DI funding was 13% for patients in same-sex couples and 2% for single patients.
- Cost-reducing IVF egg sharing programmes were used at higher rates by patients in same-sex relationships (8%) and single patients (7%) than patients in heterosexual relationships (1%).

## 1. IVF increasingly used over DI for single patients and patients in female same-sex relationships

In 2018, fertility treatment was predominantly used by patients in heterosexual relationships (90%), although recent data shows increased use by patients in female same-sex relationships (6.4%), single patients (3.2%) and surrogates (0.4%)<sup>1</sup>.

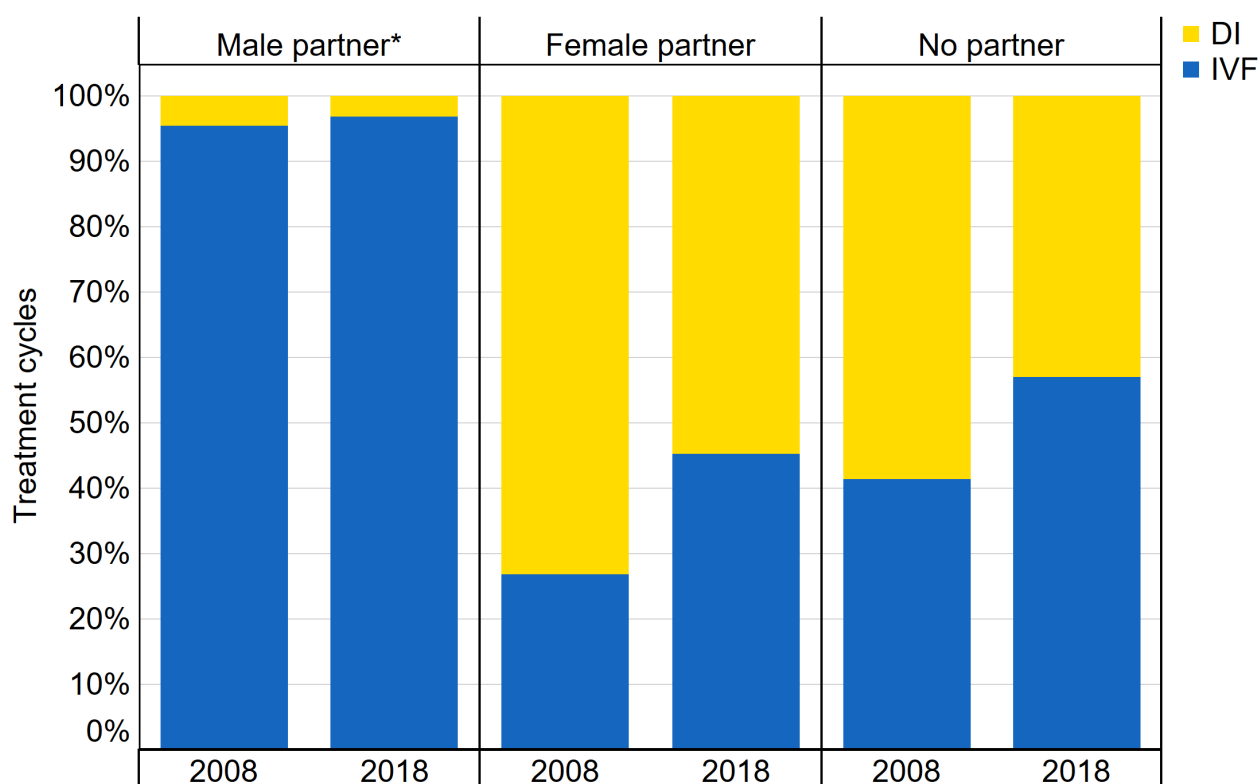
In vitro fertilisation (IVF) is the most common treatment type for patients in heterosexual relationships, accounting for 97% of their treatment cycles in 2018. Patients in heterosexual relationships are likely to use donor insemination (DI) only in cases of male factor infertility.

Historically, most patients in same-sex relationships and single patients have used DI, as these patients are likely seeking treatment to access donor sperm rather than for infertility reasons. Though DI has been the main treatment for both single patients and patients in female same-sex relationships, IVF has increased in use over the last decade. In 2008, 27% of treatment cycles for patients in female same-sex relationships were IVF, this increased to 45% in 2018. For single patients, use of IVF has increased from 41% in 2008 to 57% in 2018, making it the main treatment type for this group.

Furthermore, almost 60% of patients in female same-sex relationships seeking fertility treatment started IVF without any prior DI cycles in 2018<sup>2</sup>. The increased use of IVF may relate to the higher birth rate of IVF compared to DI (see Section 3) and to the added cost of undergoing multiple rounds of DI cycles to achieve a birth (see Annex A).

**Figure 1. IVF increasingly used by patients in same-sex relationships or with no partner**

IVF and DI treatment cycle proportions by partner type, 2008 and 2018



\*While these proportions compare IVF and DI usage, patients in heterosexual relationships may also use IUI with partner sperm – but this information is not recorded on the HFEA Register and is therefore not included here.

<sup>1</sup> These numbers refer to IVF and DI cycles combined, see [Fertility treatment 2018: trends and figures](#) and [Fertility treatment 2017: trends and figures](#) for more information

<sup>2</sup> Numbers refer to HFEA Register data where patients have a female partner, are on their first IVF cycle, are below 36 years of age (to reduce likelihood of infertility) and are using own eggs in treatment. Data excludes PGD cycles.

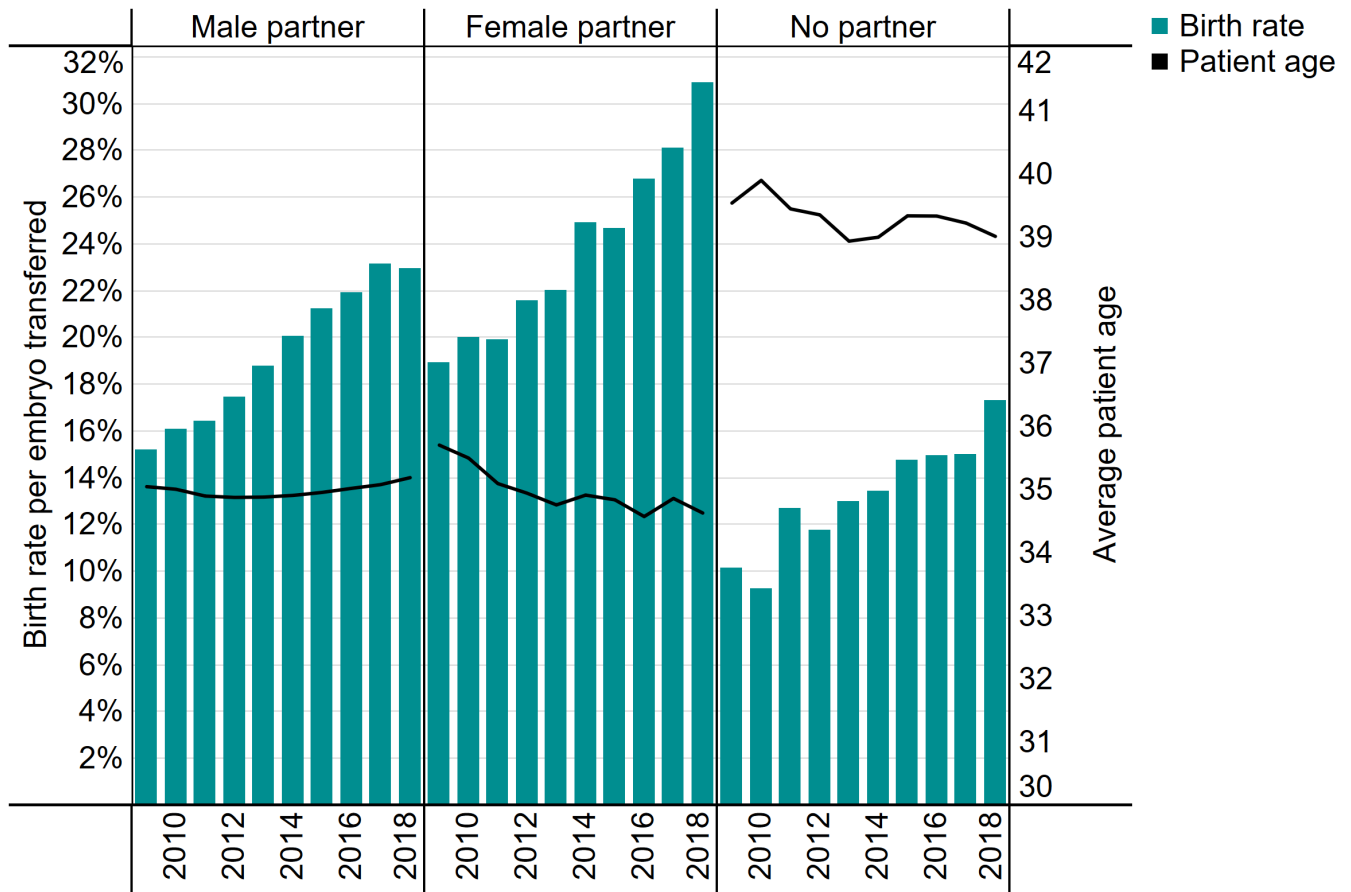
## 2. IVF birth rates increased most for patients in female same-sex relationship as average age declined

In 2018, the overall birth rate per embryo transferred was at the highest it has ever been at 23%, having increased from 15% in 2009. However, birth rates vary by family type. Comparing patients using their own eggs<sup>3</sup>, the highest birth rates were recorded for patients in female same-sex relationships at 31%, followed by patients in heterosexual relationships at 23%, and single patients had the lowest birth rates at 17% per embryo transferred. As birth rates steadily decrease with age, the lower birth rates for single patients likely relates to their higher average age at 39.

In contrast, patients in female same-sex and heterosexual relationships both had average ages of 35, but birth rates of 31% and 23% respectively. Some difference in birth rates may be due to use of sperm donors by female same-sex couples. Donor sperm is typically from younger men (29 on average)<sup>4</sup> and generally of good quality, whereas male partners are older (37 on average) and may have infertility. Another possible factor to the higher birth rates for patients in female same-sex relationships may be due to patients using IVF earlier in treatment without known infertility (see Section 1).

**Figure 2. IVF birth rates have increased most for patients in female same-sex relationships as their average age has been decreasing**

IVF birth rates per embryo transferred using own eggs by partner type, 2009-2018



Note figure 2: This data excludes cycles using donor eggs, PGD, PGS, and cycles with a recorded pregnancy but no outcome.

<sup>3</sup> To see how the use of donor eggs impacts birth rates see [Fertility Trends 2018](#)

<sup>4</sup> See [Fertility Trends 2018 underlying data set](#)

### 3. DI birth rates lowest for single patients due to higher average age

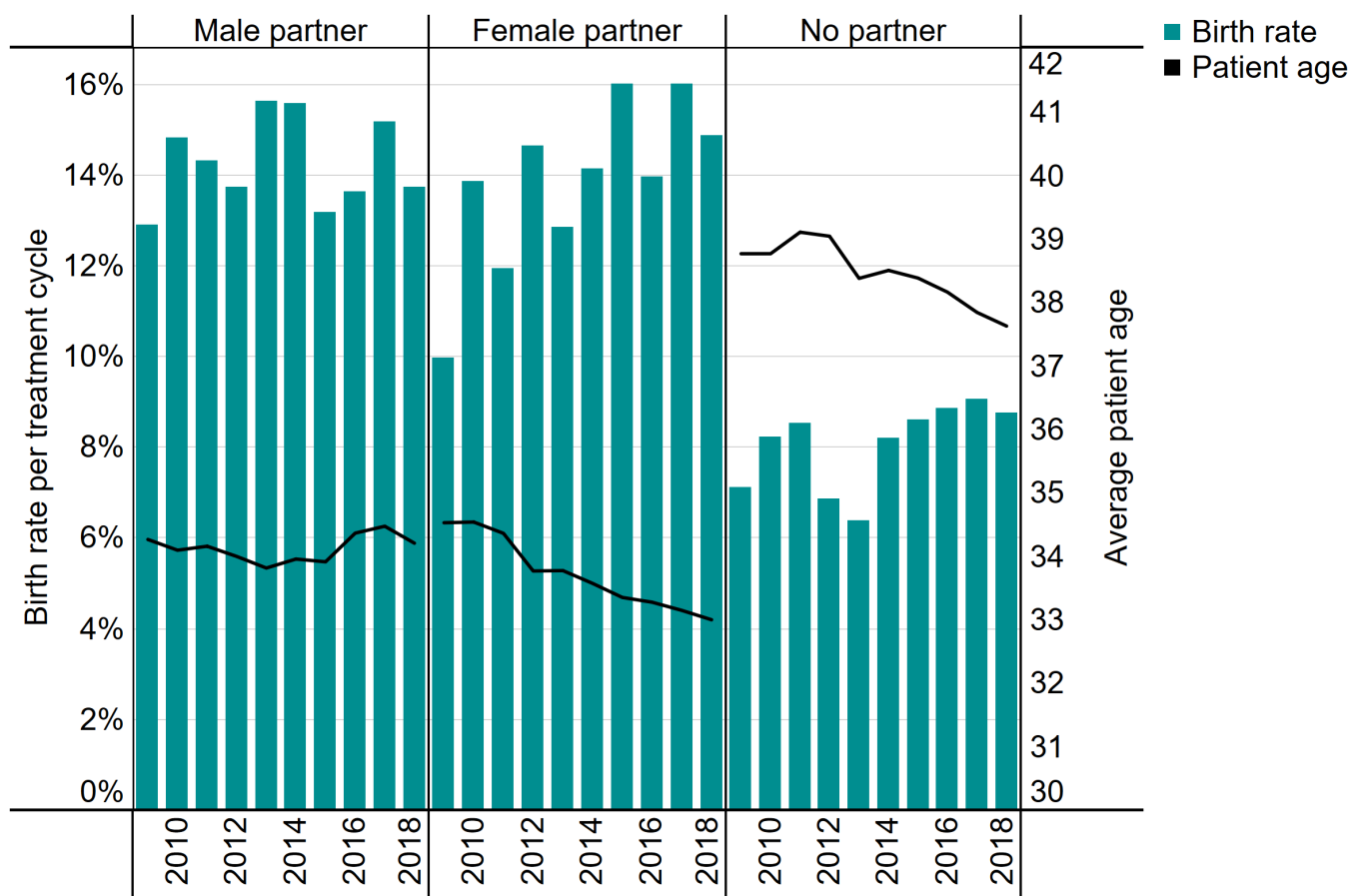
In 2018, DI resulted in lower average birth rates per treatment cycle<sup>5</sup> (13%) compared to IVF birth rates per treatment cycle (26%). However, DI has some advantages over IVF, as it is a less invasive procedure and less expensive (see Annex A). Multiple rounds of DI are also required prior to IVF for NHS-funded single patients or patients in female same-sex relationships (see Annex B).

In 2018, patients in heterosexual and female same-sex relationships had similar birth rates using DI at 14% and 15%, respectively. Single patients had the lowest birth rate at 9% per treatment cycle.

The differences in birth rates among these groups is likely due to age. Patients in female same-sex relationships had the lowest average age in 2018 at 33, followed by patients in heterosexual relationships at 34, and single patients with the highest at 38.

**Figure 3. Single patients using DI had higher average age and lower birth rates compared to other family types**

DI birth rates per treatment cycle by partner type, 2009-2018



Note figure 3: This data excludes cycles with a recorded pregnancy but no outcome

<sup>5</sup> No embryos are transferred in DI so a measure of birth rates per embryo transferred cannot be used, unlike with IVF.

## 4. Egg freezing most used by single patients

In 2018, there were almost 2,000 egg freezing cycles. While single patients accounted for only 2% of all IVF cycles, they accounted for 55% of egg freezing cycles. Patients in heterosexual relationships accounted for 44% of egg freezing cycles. Patients in female same-sex relationship rarely use egg freezing, making up less than 1% of all egg freezing cycles in 2018.

Cycles where frozen eggs were thawed for use in IVF treatment accounted for only 615 IVF cycles in 2018. Most egg thaw cycles were patients thawing donor eggs for use in treatment (71%), while a minority were patients returning to use their previously frozen eggs (29%).

Where patients return to thaw their own eggs, 88% had a male partner in 2018. Single patients accounted for the remaining 12% of egg thaw cycles for own eggs.

**Table 1. Egg freezing most used by single patients and patients in heterosexual relationships**

Egg freeze and own egg thaw cycles by partner type, 2018

<u>Partner</u>	<u>Egg freeze cycles</u>	<u>% of egg freeze cycles</u>	<u>Egg thaw cycles</u>	<u>% of egg thaw cycles</u>
Male	854	44%	155	88%
Female	6	0.3%	0	0%
None	1,072	55%	22	12%

Note table 1: cycles using donor eggs have been excluded.

## 5. NHS-funded cycles were more common for patients in heterosexual relationships

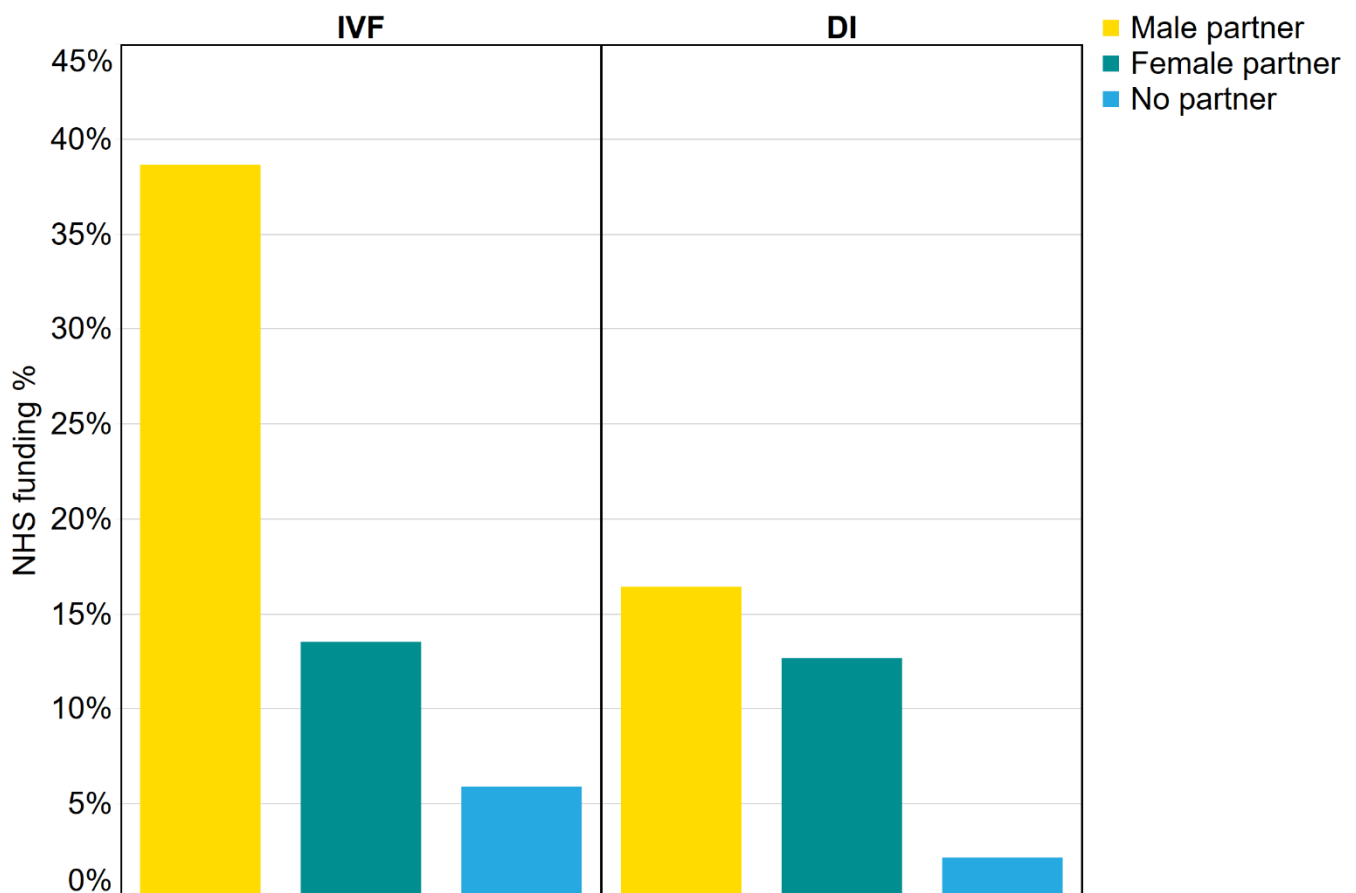
IVF is typically funded by the NHS at higher rates than DI across the UK, with 37% of IVF cycles funded by the NHS on average in 2018, compared to only 12% of DI cycles. As DI is more often used by single patients and patients in female same-sex relationships (see Section 1), they have fewer NHS-funded cycles in comparison to patients in heterosexual relationships.

The number of NHS-funded cycles also varies by family type, where patients in heterosexual relationships received the most funding on average across the UK at 39% for IVF cycles and 16% for DI cycles. In contrast, single patients had the lowest levels of NHS funding in the UK at 6% for IVF and 2% for DI. This may relate to age restrictions for funding criteria, as single patients had the highest average age of any group (see Section 3 and Section 4).

There were also lower levels of NHS-funded cycles for patients in female same-sex relationships with 14% of IVF and 13% of DI cycles funded across the UK in 2018. Unlike single patients, the reason for this is unlikely due to age, as the average age for this group was the lowest of all family types.

**Figure 4. NHS funding more common for patients in heterosexual relationships in UK**

NHS-funding proportion for IVF and DI cycles by partner type in UK, 2018





At the nation level, Scotland had the highest level of NHS-funded cycles for patients in heterosexual relationships at 61% for IVF and 47% for DI, as well as the highest funding for patients in female same-sex relationships at 40% for IVF and 70% for DI. For single patients, Wales and Scotland had higher proportions of NHS-funded cycles at 25-28% for IVF and 16% for DI.

While most IVF and DI cycles take place in England, NHS funding in England was among the lowest for all family types. The average for England will, however, mask considerable variation in English regions as funding is set locally (see underlying data for funding information by English region).

**Table 2. NHS funding for fertility treatment typically higher in Scotland for all partner types, 2018**

NHS funding of treatment cycles in UK nations by partner type, 2018

<i>UK nation</i>	<b>Partner</b>	<b>Total cycles</b>	<i>% of cycles funded by NHS</i>	
			<b>IVF</b>	<b>DI</b>
<b>England</b>	Male	57,618	36%	12%
	Female	3,807	11%	3%
	None	2,138	3%	1%
<b>Scotland</b>	Male	5,110	61%	47%
	Female	459	40%	70%
	None	78	28%	16%
<b>Wales</b>	Male	2,415	44%	9%
	Female	393	21%	14%
	None	151	25%	16%
<b>Northern Ireland</b>	Male	1,832	46%	14%
	Female	91	N/A	N/A
	None	<5	N/A	N/A

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## 6. Patients in female same-sex relationships used cost-reducing egg share programme at the highest rate

Egg sharing is when a patient who is already undergoing IVF treatment donates some of their collected eggs to the clinic<sup>6</sup> where they are receiving treatment. Patients who choose to share their eggs are usually offered free or discounted rates on their own treatment in return.

Egg sharing is a serious decision for a patient to make, as it will reduce the number of eggs remaining for their own treatment and means any children born from the donated eggs can contact the sharer when they reach 18.

Use of egg sharing programmes has been decreasing in recent years and only accounted for 0.6% (381 cycles) of all IVF cycles in 2018. While egg sharing arrangements are open to patients from all family types, we see higher proportions of egg sharing cycles from patients in female same-sex relationships or single patients. For potentially eligible patients<sup>7</sup> in 2018, egg sharing cycles made up 8% of IVF cycles for patients in a female same-sex relationship and 7% of cycles for single patients compared to less than 1% for patients in heterosexual relationships.

The higher proportions of egg sharing cycles for both patients in same-sex relationships and single patients may relate to the fact that these patients have fewer NHS-funded cycles and they likely require the added expense of donor sperm for their treatments (see Section 5 and Annex A).

National Institute for Health and Care Excellence (NICE) guidelines for Clinical Commissioning Groups (CCGs) in England were updated in 2013 to include patients in female same-sex relationships. This may relate to the decline in egg sharing since 2013.

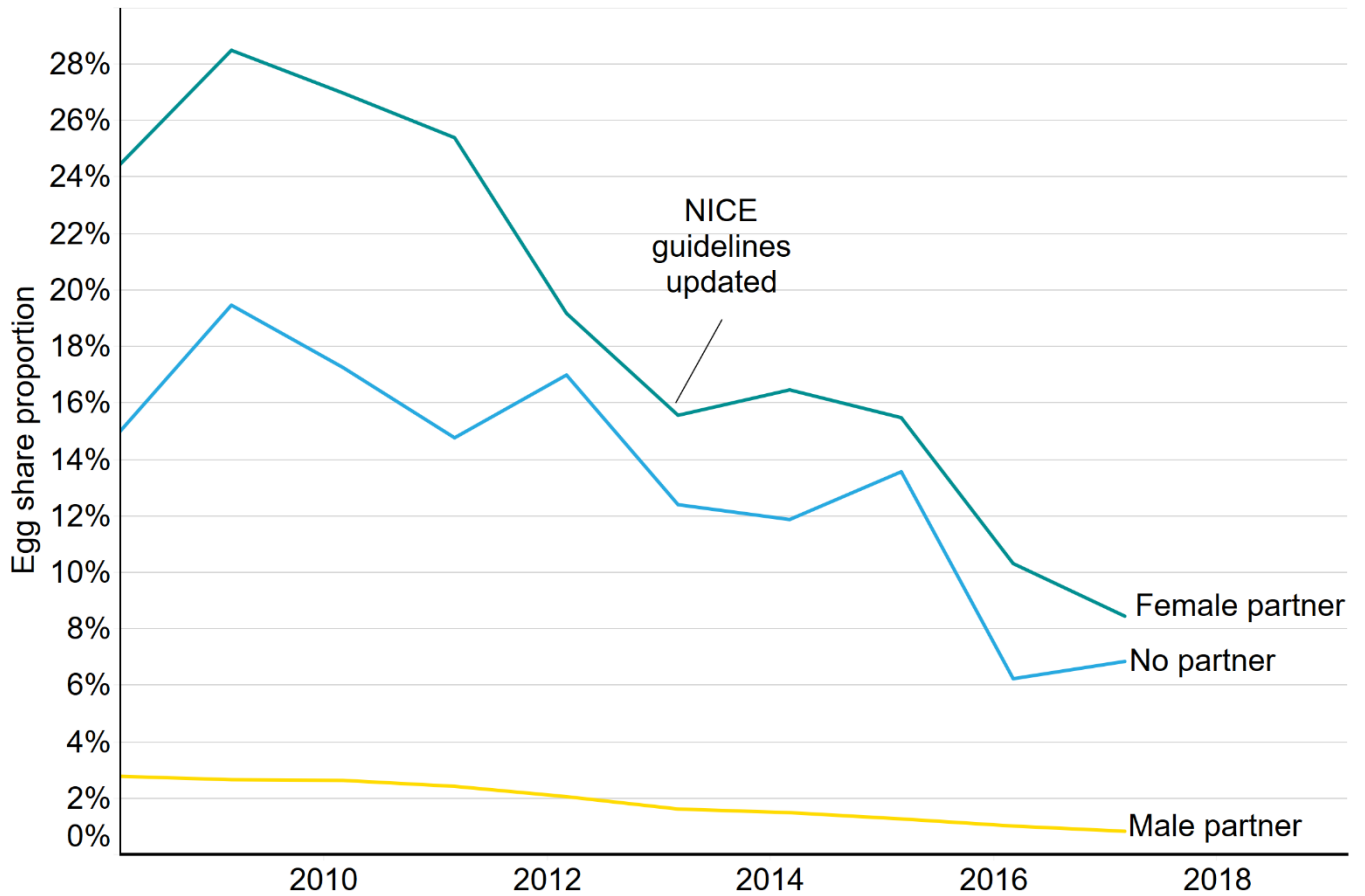
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<sup>6</sup> Egg sharing is not offered at all clinics. See our [egg sharing webpage](#) for more information.

<sup>7</sup> Generally only patients below 36 years of age are eligible for egg sharing programmes and only this group are included here.

**Figure 5. Patients in female same-sex relationships use egg sharing programmes at the highest rates, followed by single patients**

Egg sharing cycles as a proportion of IVF using own eggs for patients below 36 years of age, 2009-2018



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## About our data

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 our data warehouse containing Register data as at 07/01/2020. We have excluded approximately 850 cycles due to technical issues at one centre that resulted in reporting errors. Results are published according to the year in which the cycle was started. For further information, please see our [quality and methodology report](#) and information page in the underlying dataset.

Surrogate information has not been used throughout this report due to low numbers which fluctuate year on year, making it hard to compare to other family types. We also do not currently collect data on the intended family in cases of surrogacy, although the most recent data from [Surrogacy UK](#) has 48% of families using surrogacy as same-sex couples<sup>8</sup>.

## Contact us regarding this publication

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<sup>8</sup> [Surrogacy UK: FAQs](#)

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## Annex A: Treatment cost

Patients in heterosexual relationships overwhelmingly use IVF which costs on average £5,000 per treatment. In contrast, single patients and patients in female same-sex relationships have historically used higher rates of DI which may cost £800 - £1,300 per treatment.

Donor sperm is generally a required additional cost for single patients and patients in female same-sex relationships and costs approximately £1,000 per sample when using registered UK donors. Additionally, patients may need to purchase further samples if their fertility treatments are unsuccessful.

Cost of treatment is not within the legal remit of the HFEA and will therefore vary by clinic.

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## Annex B: Funding criteria

The level of funding is set nationally in Scotland, Wales and in Northern Ireland. In England, guidelines are set by the NICE, but funding decisions are locally determined by CCGs and vary widely<sup>9</sup>. This is a brief overview of typical funding criteria across the UK, more detailed information can be found at [Fertility Network UK](#) or by contacting your local [CCG in England](#).

The criteria for NHS-funded IVF across the UK for patients in heterosexual relationships usually includes a period of 1-2 years of trying to conceive through intercourse. Where intercourse is not an option, intrauterine insemination may be recommended for several cycles before IVF is considered.

Patients in female same-sex relationships and single patients typically need to undergo multiple DI cycles (6-12 depending on location) prior to IVF being funded. If the patient does not become pregnant within those DI cycles, the patient may be referred to IVF depending on where they live. Alternatively, as [NICE guidelines](#) set out, fertility tests may then be recommended.

There are a number of restrictions that may be put on funding, such as age of the patient (often funding is reduced when patients are over 40 years of age), smoking status, body mass index, prior children, previous sterilisation, drug use, and the duration of a relationship.

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<sup>9</sup> [Examination of CCG policy and provision of fertility services](#) by British Pregnancy Advisory Service