

## Overview of fertility treatment in 2006

The information we collect about fertility treatment can be analysed in many ways. Here we present key information about the patients treated, the different treatments used and the birth rates for treatment cycles which were carried in 2006.

We will continue to expand the type and depth of analysis we carry out in the future.

### ► 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 Register started operating in August 1991 and is a rich source of information about fertility treatment, its outcomes and the factors that contribute to the birth of a baby following treatment.

### ► Understanding the 2006 data analysis

This analysis is of treatment cycles which were started at some stage in 2006. While the outcomes of some treatment started in 2006 may not be known until 2007 these treatment outcomes are nevertheless included in this analysis.

Clinics are not always told by every patient the outcome of each treatment cycle, especially if the woman has travelled to the UK for treatment from abroad. A small number of pregnancy outcomes are therefore not included in the Register. However, since most of the pregnancy outcomes are known, it is likely that any underestimate in the outcome rates is very small.

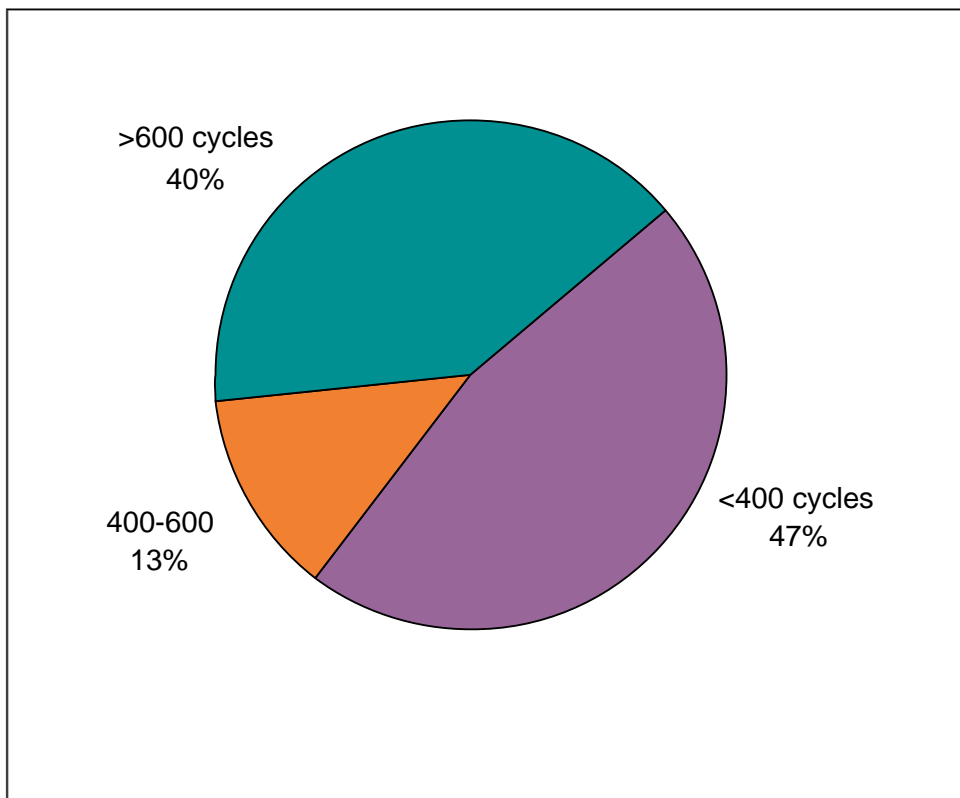
Currently, the number of women receiving treatment is estimated using a count of the unique patient code issued to patients at each clinic. This will give a slight overestimate of the number of patients receiving treatment if a patient receives treatment at more than one clinic in a particular year. This is because each patient would receive a different patient code at each clinic where they receive treatment and so would be counted twice, for example, if they received treatment at 2 different clinics in 2006. The number of patients receiving treatment at more than one clinic in any particular year is likely to be small.

The information that the HFEA publishes is a snapshot of data provided to us by licensed clinics at a particular time. This information may be subject to change as individual centres notify us of amendments. Before publication, the HFEA perform a preliminary checking process on the data, and ask the clinic to confirm the accuracy, for which they remain responsible.

► How many clinics provide treatment?

- In 2006 there were 84 clinics licensed by the HFEA to provide fertility treatment.
- In 2006 the 84 clinics carried out widely different numbers of treatment cycles from less than 50 cycles in some clinics up to 2,397 cycles performed in one clinic (Figure 1).
- Nearly half of all the clinics performed fewer than 400 cycles of treatment in 2006 and two-fifths carried out more than 600.

Figure 1: Clinic size - number of fertility treatment cycles carried out by clinics in 2006

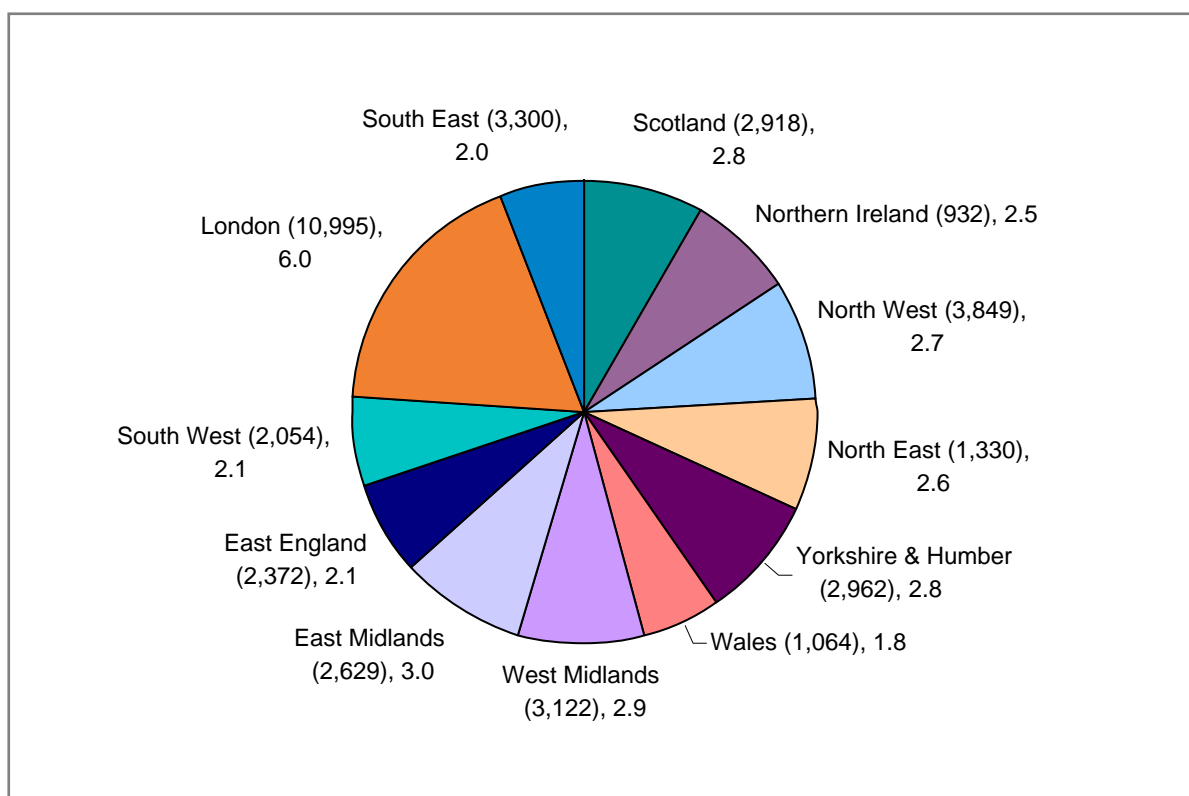


► How many women receive treatment in different areas?

- In 2006 fertility treatment licensed by the HFEA was provided by 84 clinics across the 12 regions of the UK.
- The number of women treated per 1,000 women of reproductive age\* resident in each region ranged from 1.8 in Wales to 6.0 in London (Figure 2).
- For every 1,000 women of reproductive age living in Wales in 2006, nearly two of them received a fertility treatment licensed by the HFEA. Whereas in London six women in every 1,000 received treatment.
- The higher treatment rate in the London area may be explained by the number of women coming from abroad or elsewhere in the UK for treatment.

\*Reproductive age is by convention defined as women aged 15 to 44 years.

**Figure 2: The number of women receiving fertility treatment in 2006 per 1,000 women of reproductive age, by region of residence. The number of women treated is given in brackets**



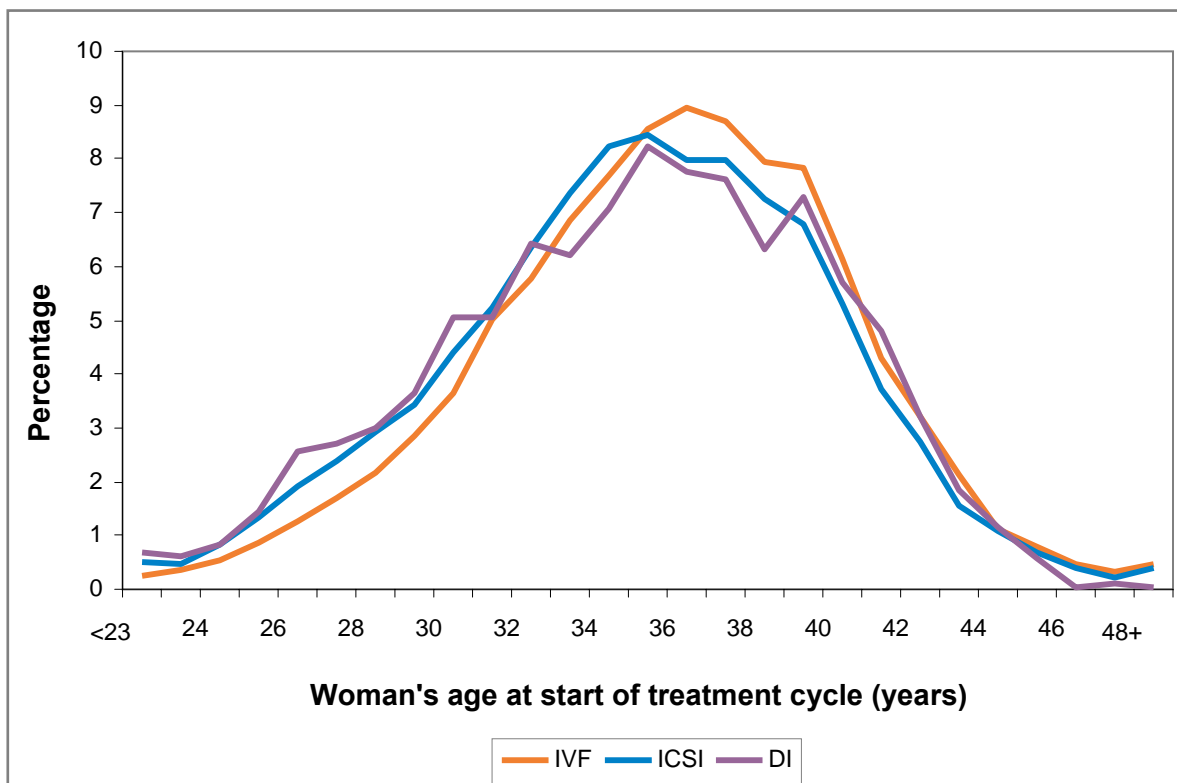
▶ **How many women had fertility treatment in 2006?**

- In 2006, 37,531 women received fertility treatment which was licensed by the HFEA. Between them they received 49,391 cycles of treatment.
  - 35,452 women had one or more cycles of IVF or ICSI.
  - 2,075 women had one or more cycles of DI.
  - 4 women had one or more cycles of GIFT.
- Of the 35,452 women who had IVF or ICSI:
  - The vast majority (34,672) - 98%, had treatment to try to conceive a baby during that cycle of treatment.
  - During the course of their treatment 606 of these women were involved in egg sharing.
  - 213 women had IVF or ICSI to store eggs or embryos for later use. This treatment was often carried out before the women had treatment for cancer which might affect their fertility. Other women store eggs or embryos for social reasons.
  - 506 women had IVF or ICSI to produce embryos for donation for use by other couples.
  - 61 women had IVF or ICSI as part of a surrogacy arrangement.

► How old were women who had treatment in 2006?

- Figure 3 shows the age at which women received treatment, for treatment cycles started in 2006.

Figure 3: The age of women receiving IVF, ICSI or DI treatment attempting immediate conception\* in 2006



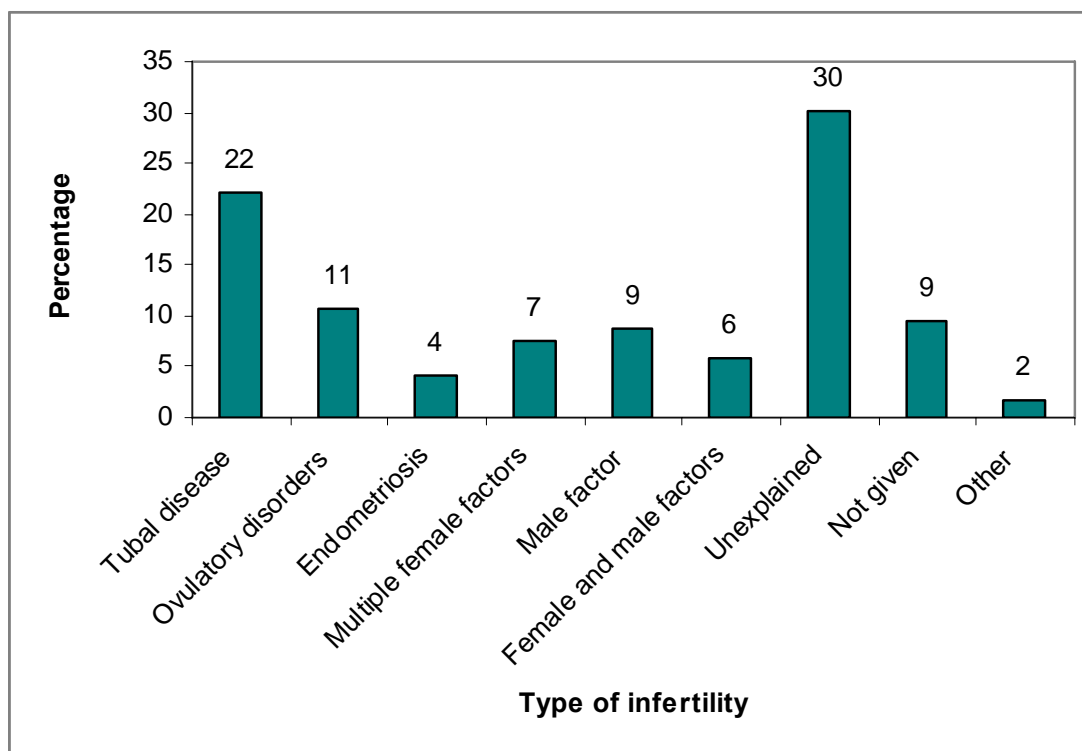
\* Excludes women receiving treatment to store eggs or embryos, to create embryos for donation and those taking part in surrogacy

- Women having IVF or ICSI to try to conceive a baby:
  - were on average 35 years old and
  - ranged in age from 17 to 58 years old.
- Women having DI treatment:
  - were on average 35 years old and
  - ranged in age from 20 to 49 years old.
- Women having IVF or ICSI to store eggs or embryos for later use:
  - were on average 35 years old and
  - ranged in age from 19 to 46 years old.

► **What types of infertility were treated?**

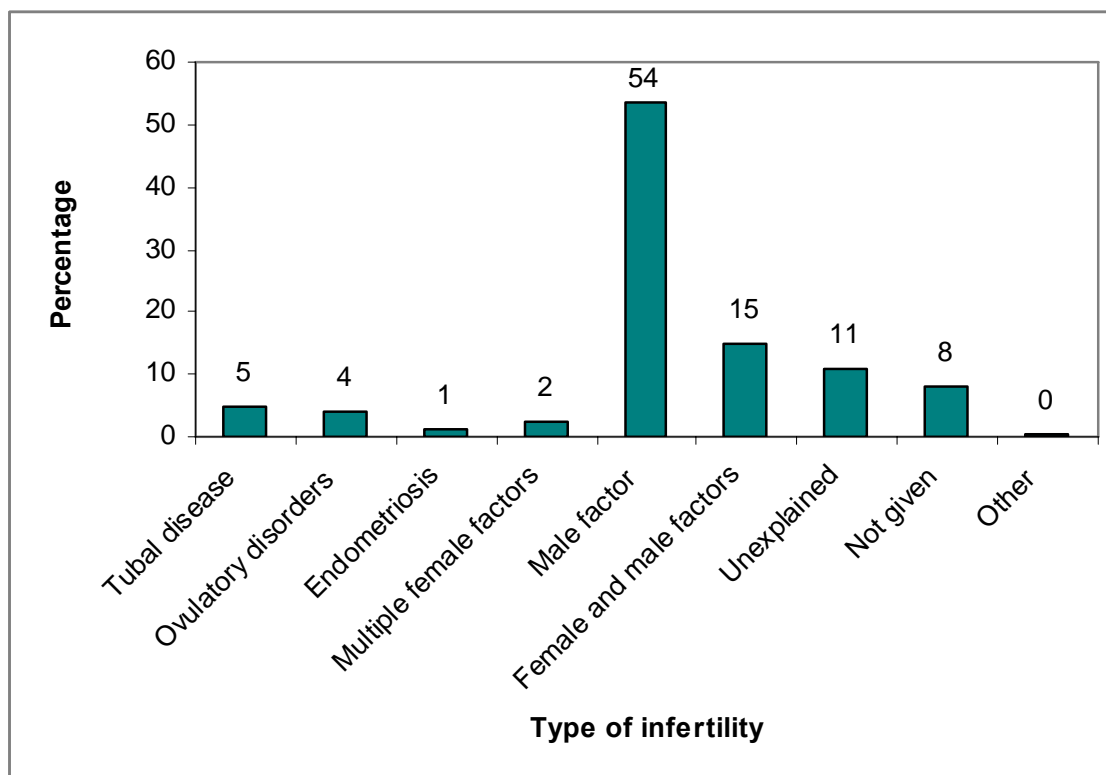
- Information about the types of infertility treated has been collected on the HFEA Register since 1991. The type of infertility is collected when patients are registered with the HFEA as beginning treatment.
- Three in every 10 women treated with IVF had unexplained infertility and just over two in every 10 had tubal disease (Figure 4a).
- Seven in every 10 women treated with ICSI had a partner with male factor infertility (Figure 4b) and just over two of them also had an infertility diagnosis themselves.
- One in every 10 women treated with ICSI had unexplained infertility.
- More than nine in every 10 women treated with DI had a partner with male factor infertility and just less than one of them also had an infertility diagnosis themselves.

**Figure 4a: Type of infertility treated with IVF in 2006\***



\* Excludes women receiving treatment to store eggs or embryos, to create embryos for donation, those having PGD or PGS, and those taking part in surrogacy

Figure 4b: Type of infertility treated with ICSI in 2006\*



\* Excludes women receiving treatment to store eggs or embryos, to create embryos for donation, those having PGD or PGS, and those taking part in surrogacy

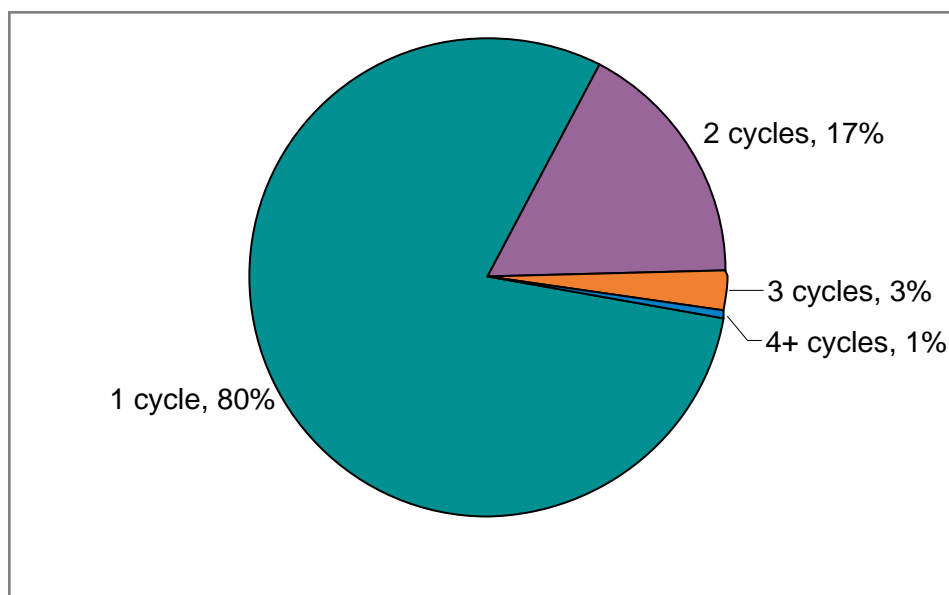
► **What types of treatment cycles were carried out?**

- Overall 37,531 women received 49,391 cycles of fertility treatment which started in 2006.
- 44,235 (90%) of the 49,391 treatment cycles were for treatment to try to conceive a baby.
- 5,156 (10%) of the cycles were for treatment to store eggs or embryos for later use, to create embryos for donation, and as part of a surrogacy arrangement.

Treatment cycles to try to conceive a baby:

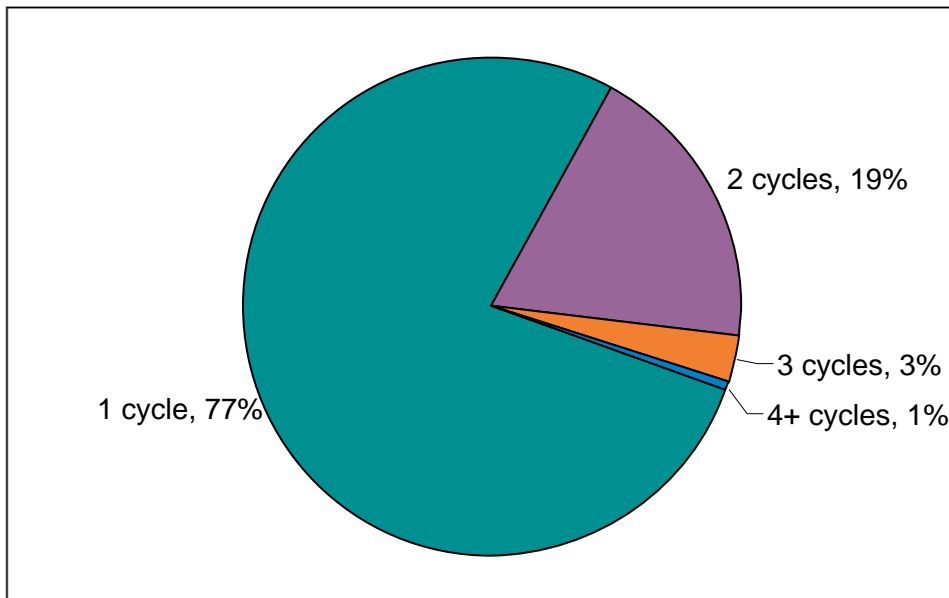
- There were 23,002 IVF cycles carried out during 2006:
  - Eight in every 10 women (80%) had one cycle of treatment; 17% had two cycles; 3% had three cycles; and just less than 1% had four or more cycles of treatment (Figure 5a).
- There were 20,845 ICSI cycles carried out in 2006:
  - Nearly eight in every 10 women (77%) had one cycle of treatment; 19% had two cycles; 3% had three cycles; and just less than 1% had four or more cycles of treatment (Figure 5b).
- There were 4,236 DI cycles carried out in 2006:
  - Five in every 10 women (49%) had one cycle of treatment, over a quarter (27%) had two cycles; 14% had three cycles; and 10% had four or more cycles of treatment (Figure 5c).

Figure 5a: Number of IVF treatment cycles started in 2006\*



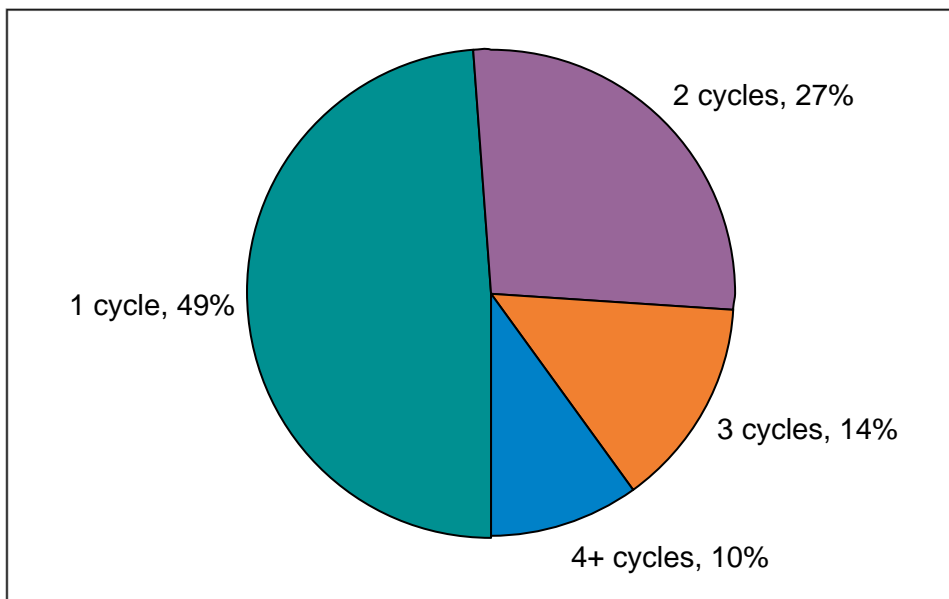
\* Excludes treatment cycles to store eggs or embryos for later use, to create embryos for donation, and those carried out as part of a surrogacy arrangement

Figure 5b: Number of ICSI treatment cycles started in 2006\*



\* Excludes treatment cycles to store eggs or embryos for later use, to create embryos for donation, and those carried out as part of a surrogacy arrangement

Figure 5c: Number of DI treatment cycles started in 2006\*

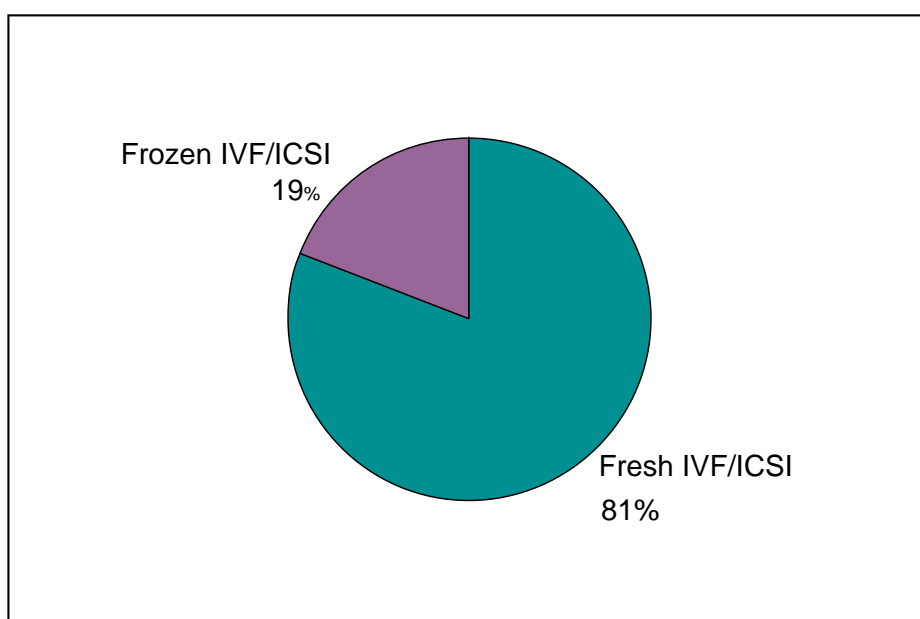


\* Excludes treatment cycles to store eggs or embryos for later use, to create embryos for donation, and those carried out as part of a surrogacy arrangement

▶ How many fresh and frozen cycles of IVF/ICSI were performed?

- 23,002 cycles of IVF treatment were carried out to attempt conception:
  - Eight in every 10 (18,488) were fresh IVF cycles.
  - Two in every 10 (4,514) were frozen IVF cycles.
- 20,845 cycles of ICSI were performed to attempt conception:
  - Just over eight in every 10 (17,054) were fresh ICSI cycles.
  - Just less than two in every 10 (3,791) were frozen ICSI cycles.

Figure 6: Fresh and frozen cycles of IVF/ICSI started in 2006\*



\* Excludes treatment cycles to store eggs or embryos for later use, to create embryos for donation, those carried out as part of a surrogacy arrangement and the small number of cycles (35) which involved transferring both fresh and frozen embryos in the same cycle

▶ **How many treatment cycles involved donor eggs, embryos and sperm?**

- A total of 1,829 of the IVF/ICSI cycles started in 2006\* involved the use of donor eggs or donor embryos. This represents 4% of all the IVF/ICSI cycles carried out to attempt immediate conception.
- A total of 1,308 of the IVF/ICSI cycles started in 2006\* involved the use of donor sperm. This represents 3% of all the IVF/ICSI cycles carried out to attempt immediate conception.

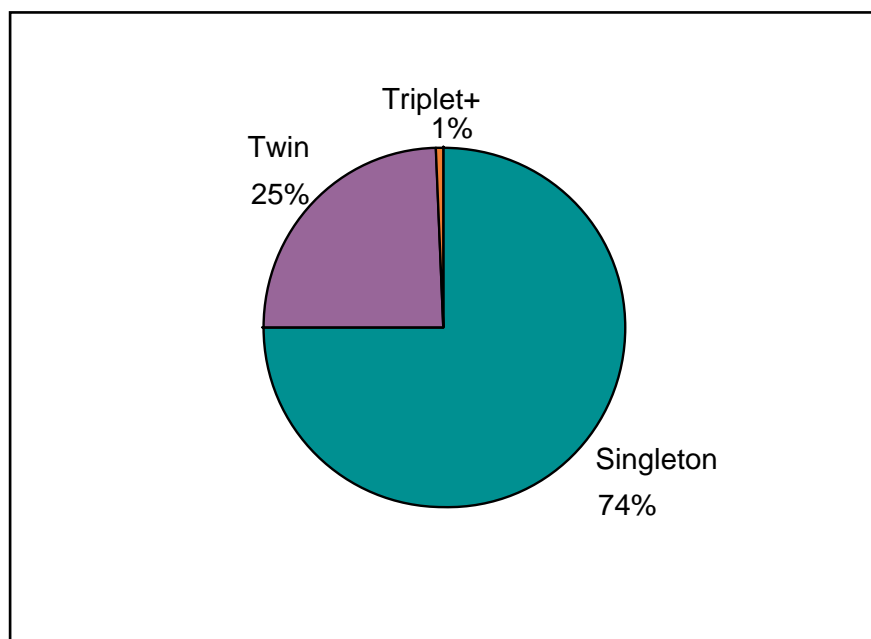
\* Excludes treatment cycles to store eggs or embryos for later use, to create embryos for donation, and those carried out as part of a surrogacy arrangement

▶ **How many women became pregnant following fertility treatment in 2006?**

- A total of 5,629 women became pregnant\* following IVF which started in 2006:
  - About three-quarters (4,211) of the women were carrying singleton pregnancies.
  - A quarter (1,384) of the women were pregnant with twins.
  - And 34 were pregnant with triplets or a higher order pregnancy.

\* This includes only pregnancies confirmed on ultrasound and excludes positive pregnancy tests which were not confirmed pregnancies on ultrasound examination

**Figure 7a: Type of pregnancies conceived following IVF treatment started in 2006 (5,629 women pregnant)**

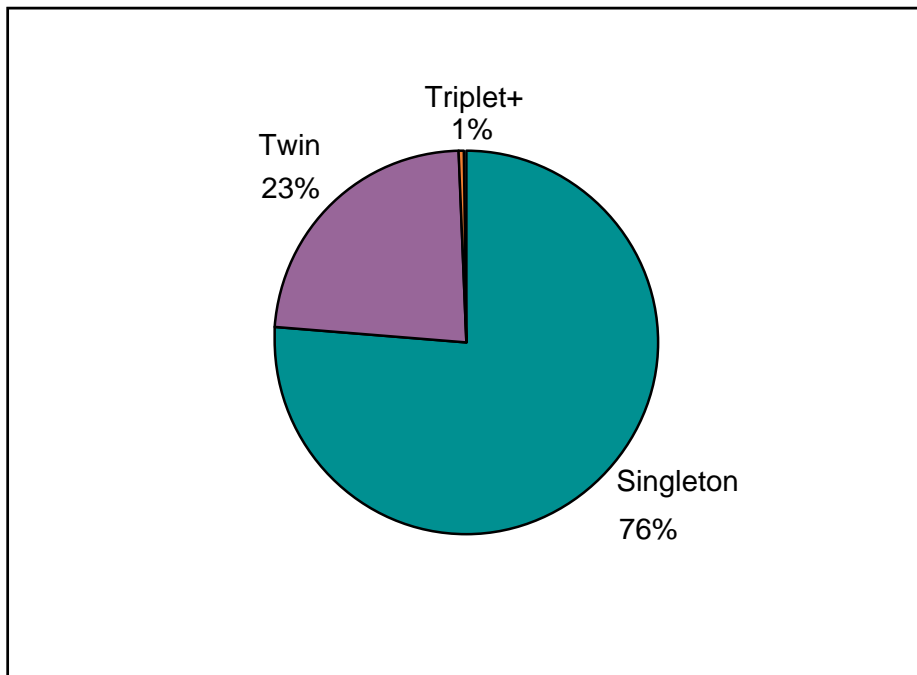


- A total of 5,756 women became pregnant\* following ICSI which started in 2006
  - Just over three-quarters (4,401) of the women were carrying singleton pregnancies.

- Just less than a quarter (1,336) of the women were pregnant with twins.
- And 18 were pregnant with triplets or a higher order pregnancy.

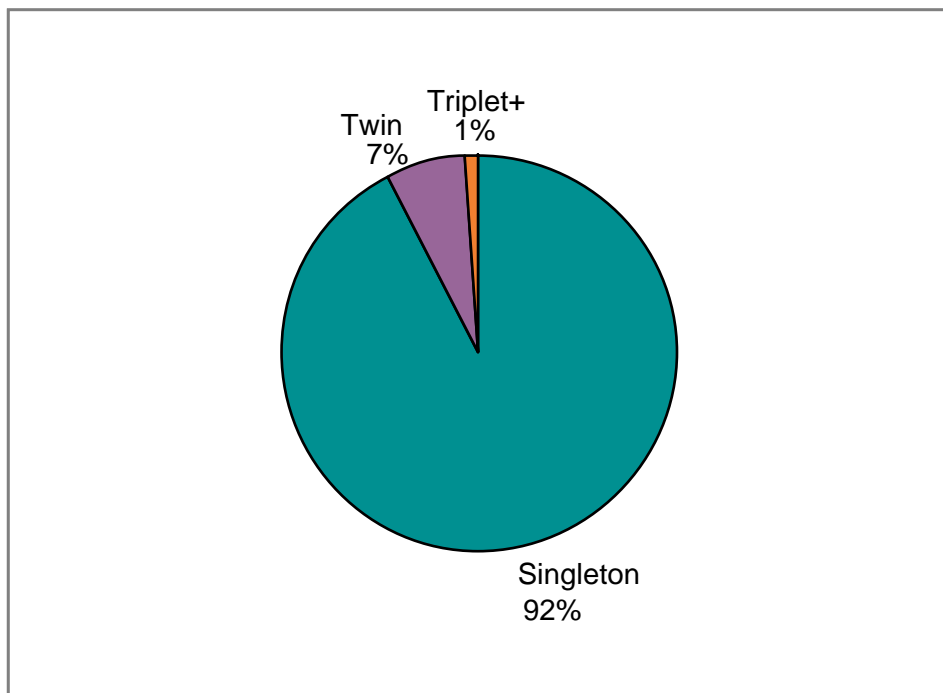
\* This includes only pregnancies confirmed on ultrasound and excludes positive pregnancy tests which were not confirmed pregnancies on ultrasound examination

Figure 7b: Type of pregnancies conceived following ICSI treatment started in 2006 (5,756 women pregnant)



- A total of 518 women became pregnant\* following DI treatment which started in 2006
  - Just over nine in 10 (479) of the women were carrying singleton pregnancies.
  - Seven in 100 (34) of the women were pregnant with twins.
  - And one in 100 (five) were pregnant with triplets or more.

Figure 7c: Type of pregnancies conceived following DI treatment started in 2006 (518 women pregnant)

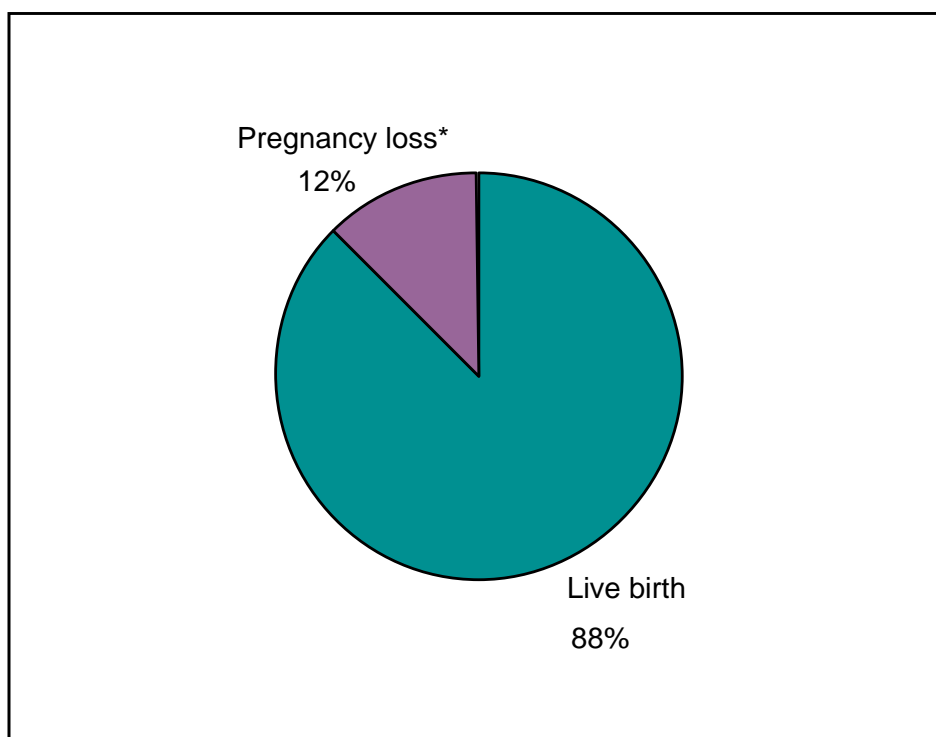


► What were the outcomes of pregnancies following fertility treatment?

The pregnancy outcomes following IVF and ICSI were the same:

- 88% of singleton pregnancies following IVF or ICSI resulted in the birth of a baby and 12% of the pregnancies were lost (Figure 7d).
- 88 in every 100 singleton pregnancies conceived following IVF or ICSI resulted in the birth of a baby.
- Unfortunately, 12 in every 100 IVF or ICSI singleton pregnancies were lost to either miscarriage or termination, or the baby was stillborn.

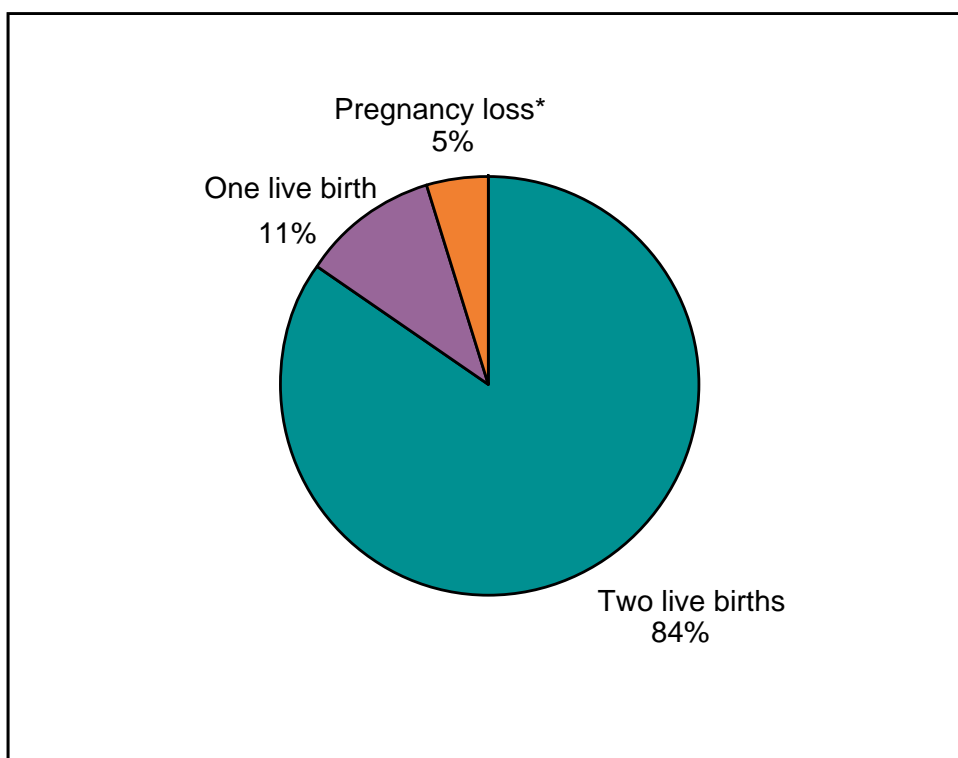
Figure 7d: Outcomes for singleton pregnancies conceived following IVF/ICSI treatment started in 2006



\*Pregnancy loss – pregnancy lost to either miscarriage or termination, or the baby was stillborn

- 84% of twin pregnancies conceived following IVF or ICSI resulted in the birth of two babies; 11% of pregnancies resulted in the birth of one baby and the other baby was lost; and 5% resulted in loss of the pregnancy (Figure 7e).
- 84 in every 100 twin pregnancies conceived following IVF/ICSI resulted in the birth of both babies.
- 11 in every 100 twin IVF/ICSI pregnancies results in the birth of just one baby and one baby was lost.
- Unfortunately in five of every 100 IVF/ICSI twin pregnancies, both babies were lost to either miscarriage or termination, or the babies were stillborn.

**Figure 7e: Outcomes for twin pregnancies conceived following IVF/ICSI treatment started in 2006**

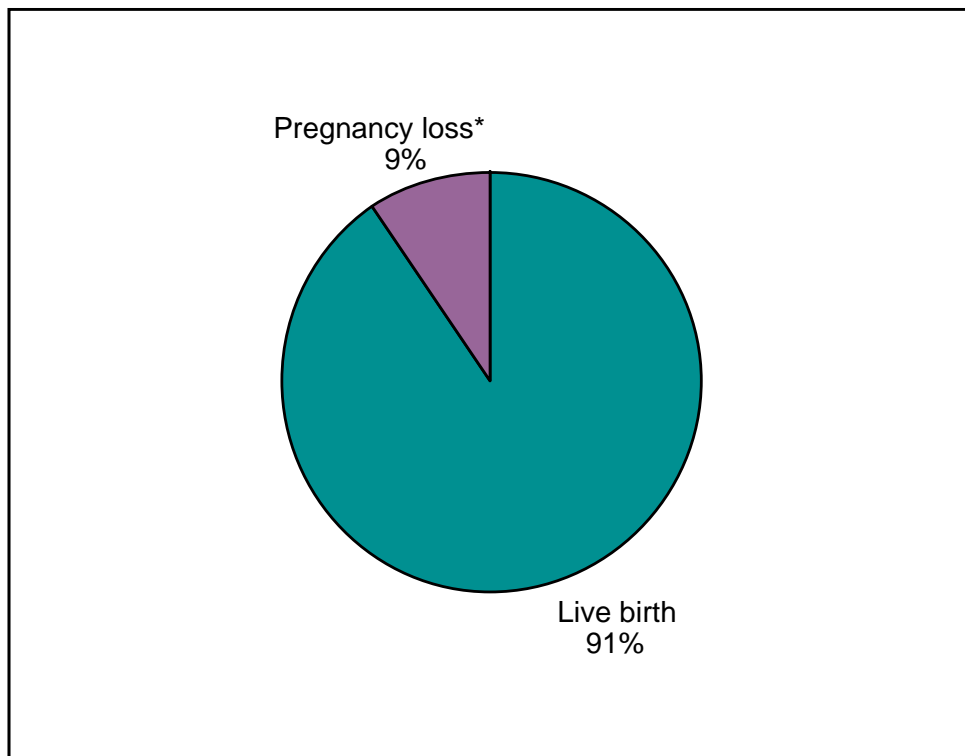


\*Pregnancy loss – pregnancy lost to either miscarriage or termination, or the baby was stillborn

The outcomes of pregnancies following DI treatment:

- 91% of singleton pregnancies conceived following DI resulted in the birth of a baby and 9% of the pregnancies were lost (Figure 7f).
- 91 in every 100 singleton pregnancies conceived following DI resulted in the birth of a baby.
- Unfortunately nine of every 100 DI conceived singleton pregnancies were lost to either miscarriage or termination, or the baby was stillborn.

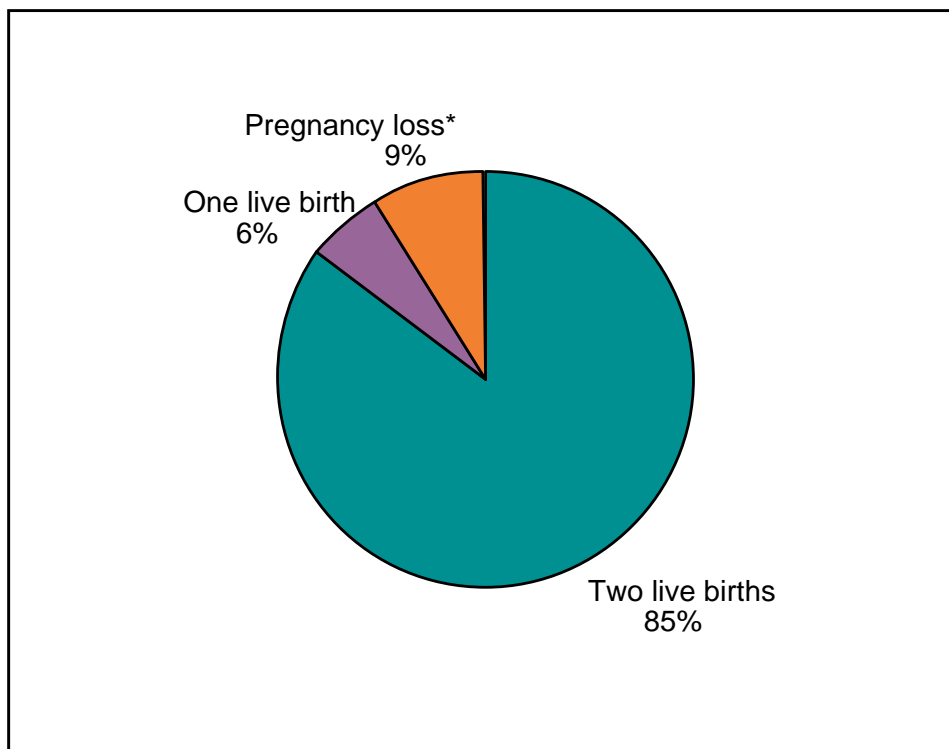
Figure 7f: Outcomes for singleton pregnancies conceived following DI treatment started in 2006



\*Pregnancy loss – pregnancy lost to either miscarriage or termination, or the baby was stillborn

- 85% of twin pregnancies conceived following DI resulted in the birth of two babies; 6% of pregnancies resulted in the birth of one baby and the other baby was lost; and 9% resulted in loss of the pregnancy (Figure 7g).
- 85 in every 100 twin pregnancies conceived following DI resulted in the birth of both babies.
- Six in every 100 twin DI pregnancies resulted in the birth of just one baby and one baby was lost.
- Unfortunately in nine of every 100 DI twin pregnancies, both babies were lost to either miscarriage or termination, or the babies were stillborn.

Figure 7g: Outcomes for twin pregnancies conceived following DI treatment started in 2006

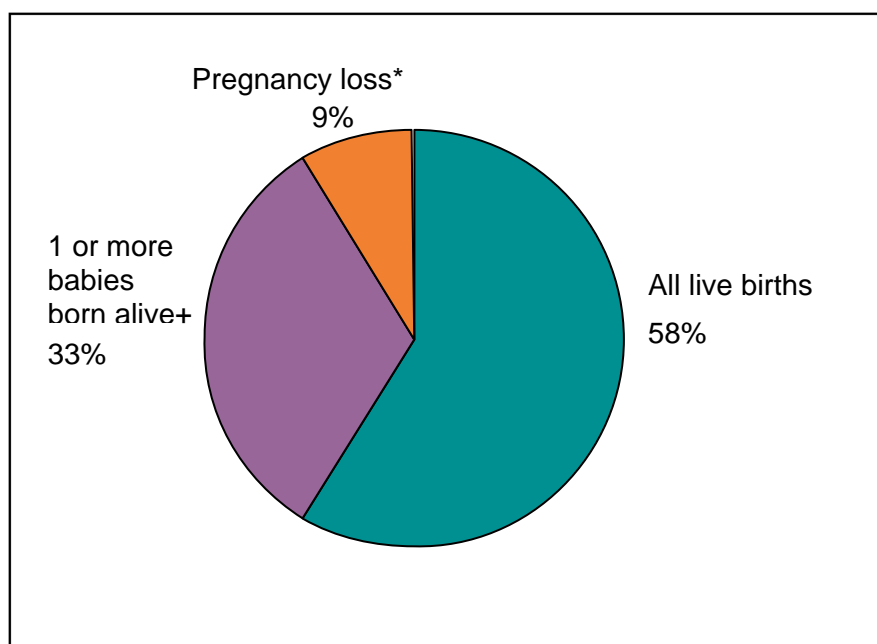


\*Pregnancy loss – pregnancy lost to either miscarriage or termination, or the baby was stillborn

The outcomes of pregnancies following IVF, ICSI and DI treatment were the same for the triplet and higher order multiple pregnancies. These are combined below:

- 58% of triplet and higher order pregnancies conceived following IVF, ICSI or DI resulted in the birth of all the babies; 33% of pregnancies resulted in the birth of one or more (but not all) of the babies and the other babies were lost; and 9% resulted in loss of the pregnancy (Figure 7h).
- 58 in every 100 IVF/ICSI/DI triplet (or more) pregnancies resulted in the birth of all the babies.
- 33 in every 100 triplet (or more) IVF/ICSI/DI pregnancies results in the birth of just one or more, but not all, of the babies and the other babies were lost.
- Unfortunately in nine in every 100 IVF/ICSI/DI triplet (or more) pregnancies, all of the babies were lost to either miscarriage or termination, or the babies were stillborn.

**Figure 7h: Outcomes for triplet and higher order pregnancies conceived following IVF/ICSI/DI treatment started in 2006**



\*Pregnancy loss – pregnancy lost to either miscarriage or termination, or the baby was stillborn  
 + One or more, birth of one or more but not all the babies, ie for triplets 1-2 babies born and for quadruplets 1-3 babies born

▶ **How many babies were born following fertility treatment?**

- A total of 6,238 babies were born following IVF which started in 2006:
  - Of these 3,691 (59%) were singletons.
  - 2,467 (40%) were twins\*.
  - 80 (1%) were triplets or high order multiples\*.
- A total of 6,307 babies were born following ICSI which started in 2006:
  - Of these 3,846 (61%) were singletons.
  - 2,426 (39%) were twins\*.
  - 35 (1%) were triplets or high order multiples\*.
- A total of 507 babies were born following DI treatment which started in 2006:
  - Of these 434 (85%) were singletons.
  - 60 (12%) were twins\*.
  - 13 (3%) were triplets or high order multiples\*.

\* Unfortunately not all the co-multiples of the twins, triplets and higher order multiples were born and some were lost to miscarriage or termination, or the baby was stillborn

▶ **How many treatment cycles involved donated eggs, embryos or sperm?**

Women donating eggs and embryos:

- Of the 35,452 women who started IVF or ICSI in 2006:
  - 648 women donated eggs for use in the treatment of other couples; 606 of these women donated eggs as part of an egg sharing agreement.
  - 518 women donated embryos for use in the treatment of other couples.

Men donating sperm:

- There were 1,386 individual sperm donors whose sperm was used in treatment cycles which started in 2006.

Cycles of treatment in which donations were made:

- Of the 45,149 IVF or ICSI treatment cycles which were started in 2006:
  - 844 cycles involved the donation of eggs for use in the treatment of other couples.
  - 719 of these cycles were carried out under an egg sharing agreement.

Treatment cycles involving the use of donor eggs, embryos and sperm:

- A total of 1,930 IVF or ICSI treatment cycles which were started in 2006 involved the use of donor eggs:
  - 1,107 of the cycles were IVF.
  - 791 of the cycles were ICSI.
  - 32 of the cycles were mixed IVF+ICSI cycles.
- A total of 5,637 treatment cycles involved the use of donor sperm:
  - 884 of the cycles were IVF.
  - 512 of the cycles were ICSI.
  - 5 were mixed IVF and ICSI cycles.
  - 4,236 were cycles of DI.

- ▶ **How many babies were born following treatment involving donated eggs, embryos or sperm?**
  - A total of 7,307 cycles of fertility treatment involving the donation of either a donated egg, a donated embryo or donated sperm were started in 2006.
  - 1,406 pregnancies resulted from the 7,307 cycles of treatment.
    - 19 in every 100 cycles of treatment involving donated eggs, embryos or sperm resulted in an ultrasound confirmed pregnancy (19%).
    - 80 in 100 of these pregnancies (80%) were singleton pregnancies.
    - 20 in 100 of these pregnancies (20%) were multiple pregnancies.
  - These pregnancies resulted in a total of 1,500 live births.
    - 1,500 babies were born following egg, embryo or sperm donation.

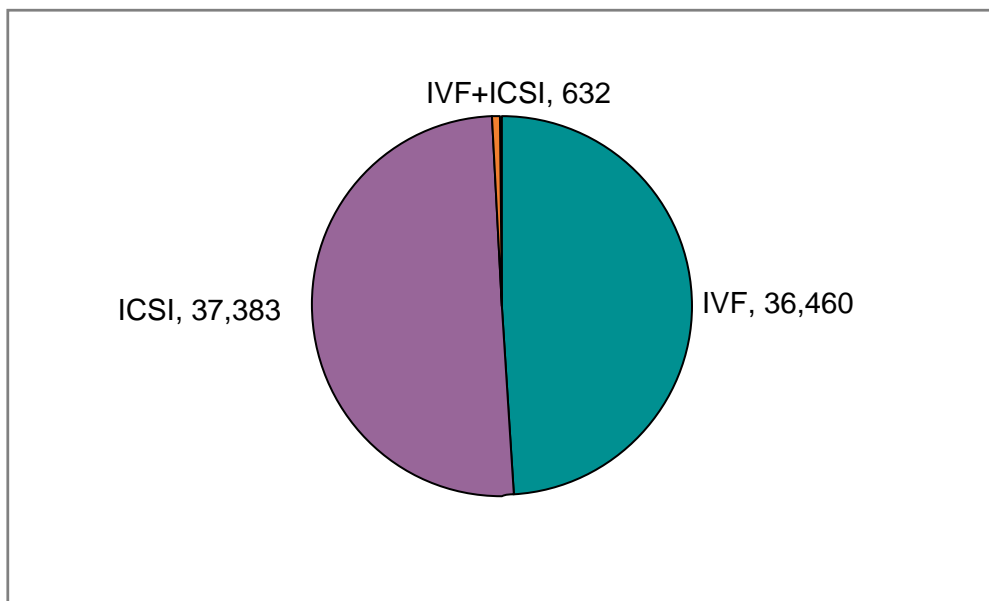
▶ How many embryos were created in 2006?

- A total of 236,581 embryos were created from fertility treatment which started in 2006.
- A total of 120,959 embryos were created following IVF:
  - Most of these embryos (120,082) were created during the course of treatment for women who were attempting to conceive immediately; on average eight embryos were created in each cycle.
  - A further 824 embryos were created to be stored for use in a later cycle with an average of 13 embryos created in each cycle. Embryo storage is used by women who are about to undergo treatment which may affect their later fertility, for example, the treatment of cancer.
  - And a further 53 embryos were created to be donated for the use by other couples.
- A total of 112,662 embryos were created following ICSI:
  - Most of these embryos (112,321) were created during the course of treatment for women who were attempting to conceive immediately; on average seven embryos were created in each cycle.
  - A further 317 embryos were created to be stored for use in a later cycle with an average of nine embryos created in each cycle. Embryo storage is used by women who are about to undergo treatment which may affect their later fertility, for example, the treatment of cancer.
  - And a further 24 embryos were created to be donated for the use by other couples.
- A total of 2,654 embryos were created following treatment which involved both IVF and ICSI:
  - Most of these embryos (2,564) were created during the course of treatment for women who were attempting to conceive immediately; on average 10 embryos were created in each cycle.
  - A further 85 embryos were created to be stored for use in a later cycle with an average of seven embryos created in each cycle. Embryo storage is used by women who are about to undergo treatment which may affect their later fertility, for example, the treatment of cancer.
  - And a further five embryos were created to be donated for the use by other couples.
- A total of 3,300 fresh embryos were created as part of IVF or ICSI treatment for women who were attempting to conceive immediately but were then donated for research purposes. Similarly 42 frozen embryos were also donated for research.
- Finally, 306 embryos were created during the course of 85 cycles of treatment which were carried out as part of a surrogacy arrangement.

▶ How many embryos were transferred?

- A total of 74,475 embryos were transferred during the course of fertility treatment which started in 2006 (Figure 8a):
  - 36,460 embryos were transferred during IVF.
  - 37,383 were transferred during ICSI.
  - A further 632 were transferred during treatment which involved both IVF and ICSI.

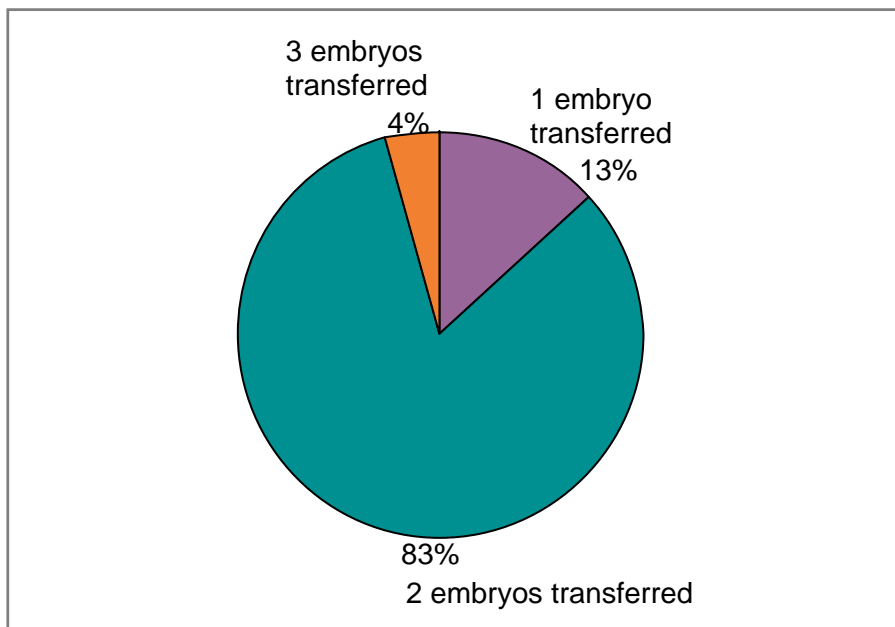
Figure 8a: Total number of embryos transferred during IVF and ICSI treatment cycles started in 2006



► How many embryos were transferred in each treatment cycle?

- There was no difference in the number of embryos transferred during each cycle of IVF and ICSI treatment (Figure 8b).
  - 13 in every 100 cycles involved the transfer of one embryo (1ET).
  - 83 in every 100 cycles of IVF/ICSI treatment involved the transfer of two embryos (2ET).
  - And 4 in every 100 cycles involved three embryos being transferred (3ET).

Figure 8b: Number of embryos transferred (ET) in each cycle in IVF/ICSI treatment cycles started in 2006



▶ How many embryos were stored by women for later use?

- A total of 10,787 cycles of IVF and ICSI started in 2006 produced 49,351 embryos that were stored by women for their own use in later treatment (Figure 9):
  - 26,814 embryos were created and stored following IVF and women stored an average of six embryos.
  - 21,980 embryos were created and stored following ICSI and women stored an average of five embryos.
  - 557 embryos were created and stored following IVF and ICSI combined and women stored an average of nine embryos.

Figure 9: Number of embryos stored by women for their own later use from IVF and ICSI treatment cycles started in 2006

