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**Assisted Conception  
Australia and New Zealand  
1996**

Tara Hurst  
Esther Shafir  
Paul Lancaster

Australian Institute of Health and Welfare  
National Perinatal Statistics Unit  
and  
The Fertility Society of Australia

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This report can be obtained from:

AIHW National Perinatal Statistics Unit  
Level 3, Vera Adderley Building  
Prince of Wales Hospital  
Randwick NSW 2031

Tel: (02) 9382 1014 Fax: (02) 9382 1025

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# Collaborating IVF and GIFT units

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## **New South Wales**

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St George Fertility Centre, Sydney (Dr David C. Macourt)  
Lingard Fertility Centre, Newcastle (Dr Robert Woolcott)  
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City West IVF, Sydney (Dr Geoffrey L. Driscoll)  
Royal Prince Alfred Hospital, Sydney (Professor Robert P.S. Jansen)  
Sydney IVF, Sydney (Professor Robert P.S. Jansen)  
Royal Hospital for Women Fertility Group, Sydney (Dr Stephen Steigrad)  
Albury Reproductive Medicine Centre, Albury (Dr John C. McBain)  
IVF South, Sydney (Professor Michael Chapman)

## **Victoria**

Royal Women's Hospital and Melbourne IVF, Melbourne (Dr Andrew Speirs, Dr Ian Johnston)  
Monash IVF, Melbourne (Professor Gab Kovacs)  
Melbourne Assisted Conception Centre, Mercy Hospital for Women, Melbourne (Dr Mac Talbot)  
Mildura Reproductive Medicine Centre, Mildura (Dr John Bowditch)

## **Queensland**

Queensland Fertility Group, Brisbane (Dr Douglas Keeping)  
Allamanda Fertility Centre, Southport (Dr Irving T. Korman)  
Queensland In-Vitro Fertilization Services, Brisbane (Dr John Allan)  
North Queensland IVF Services, Townsville (Dr Glenn Schaefer)  
Toowoomba IVF, Toowoomba (Dr John Esler)

## **South Australia**

The Queen Elizabeth Hospital, Adelaide (Professor Colin D. Matthews)  
Flinders Reproductive Medicine, Adelaide (Associate Professor Stephen J. Judd)

## **Western Australia**

PIVET Medical Centre, Perth (Dr John L. Yovich)  
Concept Fertility Centre, Perth (Dr Rob Mazzucchelli)  
Fertility West, Perth (Dr Anne Jequier)

## **Tasmania**

TASIVF, Hobart (Dr Steve Sonneveld)  
Launceston SIVF, Launceston (Dr Timothy Sutton)

## **Australian Capital Territory**

Canberra Fertility Centre, Canberra (Dr Martyn A. Stafford-Bell)

## **New Zealand**

Fertility Plus, Auckland (Dr Guy Gudex)  
Fertility Associates, Auckland (Dr Richard Fisher)  
Otago Fertility Services, Dunedin (Dr Barbara Richards)  
North Shore Fertility, Auckland (Dr Barry Lowe)  
New Zealand Centre for Reproductive Medicine, Christchurch (Dr Peter Benny)  
Fertility Associates, Wellington (Dr Diane Ormsby)

## Abbreviations

NSW	-	New South Wales
Vic	-	Victoria
Qld	-	Queensland
WA	-	Western Australia
SA	-	South Australia
Tas	-	Tasmania
ACT	-	Australian Capital Territory
NT	-	Northern Territory
AIHW	-	Australian Institute of Health and Welfare
NPSU	-	National Perinatal Statistics Unit
GIFT	-	gamete intrafallopian transfer
GnRH <sub>a</sub>	-	gonadotrophin-releasing hormone analogues
hCG	-	human chorionic gonadotrophin
ICSI	-	intracytoplasmic sperm injection
IVF	-	in-vitro fertilisation
na	-	not available
PROST	-	pronuclear stage transfer
PZD	-	partial zona dissection
SUZI	-	subzonal insemination
TEST	-	tubal embryo stage transfer
ZIFT	-	zygote intrafallopian transfer

# Highlights

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- In Australia, infertile couples were treated by in-vitro fertilisation (IVF) and gamete intrafallopian transfer (GIFT) in 27 units in 1996. New Zealand had 6 IVF units in this period. There were 2,920 births after assisted conception in Australia in 1995, accounting for 1.1% of all births. In New Zealand, there were 175 births after assisted conception in 1995.
- When all techniques of assisted conception are included together, the viable pregnancy rate in 1996 was 14.4 per 100 embryos transfer cycles, indicating that 1 in 7 treatment cycles reaching the stage of embryo transfer resulted in a viable pregnancy of 20 weeks or more.
- In 1996, after transfer of fresh embryos to the uterus, the viable pregnancy rate was 11.9 per 100 oocyte retrieval cycles. After GIFT, the viable pregnancy rate was 22.0 per 100 oocyte retrieval cycles. After embryo freezing, the viable pregnancy rate was 11.1 per 100 embryo transfer cycles.
- There has been a marked increase in treatment cycles in which intracytoplasmic sperm injection (ICSI) was attempted. Oocyte retrieval cycles for microinsemination increased from 1,243 in 1993 to 2,786 in 1994, 4,261 in 1995, and 5,271 in 1996. With an additional 2,297 embryo transfer cycles after microinsemination and embryo freezing in 1996, microinsemination accounted for 35.1% of all assisted conception cycles in that year. The overall proportion of assisted conception pregnancies resulting from ICSI and other types of microinsemination increased rapidly from less than 1 in 200 (0.4%) in 1990 to more than 1 in 4 (28.8%) in 1995.
- The viable pregnancy rate for ICSI and transfer of fresh embryos was 13.7 per 100 oocyte retrieval cycles in 1996. For cycles after ICSI and embryo freezing, the viable pregnancy rate was 11.1 per 100 embryo transfer cycles in 1996.
- Between 1995 and 1996, there were increases in the proportion of cycles with more than 3 embryos or oocytes transferred. For all IVF, more than 3 embryos were transferred to the uterus in 1.9% of cycles in 1995 and in 2.8% of cycles in 1996; for GIFT, more than 3 oocytes were transferred in 5.6% of cycles in 1995 and in 7.2% of cycles in 1996.
- The multiple pregnancy rate varied markedly between IVF units. In the combined years of 1993-1995, the multiple pregnancy rate for all types of assisted conception ranged from 6.6% to 29.4%. During this same period, multiple pregnancy occurred in 1 in 5 (19.9%) of all IVF and GIFT pregnancies. In IVF pregnancies, twins increased from 15.1% in 1994 to 17.7% in 1995, triplets occurred in 1.6% in 1994 and 1.7% in 1995, and there was 1 quadruplet pregnancy in 1994. In GIFT pregnancies, twins decreased from 22.0% in 1994 to 20.0% in 1995; triplets decreased from 3.9% in 1994 to 2.7% in 1995; and there were 2 quadruplet pregnancies in 1994 and 1 in 1995.
- In 1995, 46 (59.0%) of 78 perinatal deaths after IVF, and 12 (63.2%) of 19 perinatal deaths after GIFT, occurred in multiple births.
- Among 1,727 IVF pregnancies after ICSI between 1990 and 1995, live births occurred in 77.2%, spontaneous abortion in 19.0%, and ectopic pregnancy in 1.8%. Twins occurred in 16.8% of viable pregnancies, triplets in 1.7%, and there was one quadruplet pregnancy. Among 1,630 ICSI births, the perinatal death rate was 34.4 per 1,000 births; for singleton births, it was 19.9 per 1,000 births; for twins, 59.5 per 1,000 births; and for triplets, 101.4 per 1,000 births. Congenital malformations were reported in 51 (3.1%) fetuses and infants after ICSI, similar to the overall rate in IVF births.

# 1 Introduction

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This report contains a summary of the results of treatment of infertility by assisted conception in all units in Australia and New Zealand in 1996. It includes data on in-vitro fertilisation (IVF), gamete intrafallopian transfer (GIFT), and the newer technique of intracytoplasmic sperm injection (ICSI) used to treat male infertility, but excludes other treatment of infertility by artificial insemination or by ovulation induction without IVF or GIFT. In Australia, there were 27 IVF or GIFT units in 1996. In New Zealand, there were 6 units. Some IVF units have set up satellite clinics that are linked to major IVF centres in capital cities. Regional centres where satellite clinics have been established include: in New South Wales, Coffs Harbour, Orange and Wollongong; in Victoria, Ballarat, Geelong, Sale, Shepparton and Wangaratta; in Queensland, Mackay and Townsville; and in the Northern Territory, Darwin.

The IVF units reported summary data on treatment cycles and also notified each pregnancy on a standard form (Appendix 2). The data included the number of cycles commenced in 1996 and the number progressing to the stages of oocyte retrieval, embryo transfer, clinical pregnancy, and viable pregnancies of at least 20 weeks' gestation. Each IVF unit reported separate results for IVF and uterine transfer of fresh embryos, IVF and tubal transfer of fresh embryos, IVF and transfer of frozen/thawed embryos, donor oocytes, ICSI and GIFT. The tables on treatment cycles are mutually exclusive and so differ slightly from the presentation of IVF results in reports for the years prior to 1991. Each IVF unit was also requested to provide tabulated data on the age distribution, causes of infertility, drugs used to stimulate ovulation, and the number of embryos or oocytes transferred for women treated by IVF, intracytoplasmic sperm injection (ICSI), and GIFT. Tabulated summaries of results and computer printouts of notified pregnancies were returned to each unit to check their accuracy and completeness.

All analyses of treatment cycles and pregnancy outcome in this report are based on the year of treatment and conception. Data on pregnancy outcome are given for 1995 and include births up to September 1996. Each IVF unit is designated by an alphabetical letter which may differ from that given for the unit in previous reports. This code is based on the relative size of the IVF units (based on the total number of treatment cycles) and therefore may vary from year to year.

Following the recommendation of the NHMRC Working Party on the Long-term Effects on Women from Assisted Conception to develop a system of reporting adverse effects of treatment (NHMRC 1995), IVF units were requested to provide a brief summary of major incidents or serious morbidity occurring among women treated by assisted conception in 1996. This pilot study resulted in reports of ovarian hyperstimulation and other complications such as peritonitis and torsion of the ovary. As there is already a major multicentre study of the risks of cancer among women treated by assisted conception in progress in Australia, it is considered that this study will provide more meaningful data on cancer than sporadic reports of major incidents to the NPSU. Any notified cases of cancer will not be included in the reports published by the NPSU. The NPSU will continue to request quarterly reports on adverse effects of treatment, and also on attempts at preimplantation diagnosis of genetic disorders, and will summarise this information in future reports.

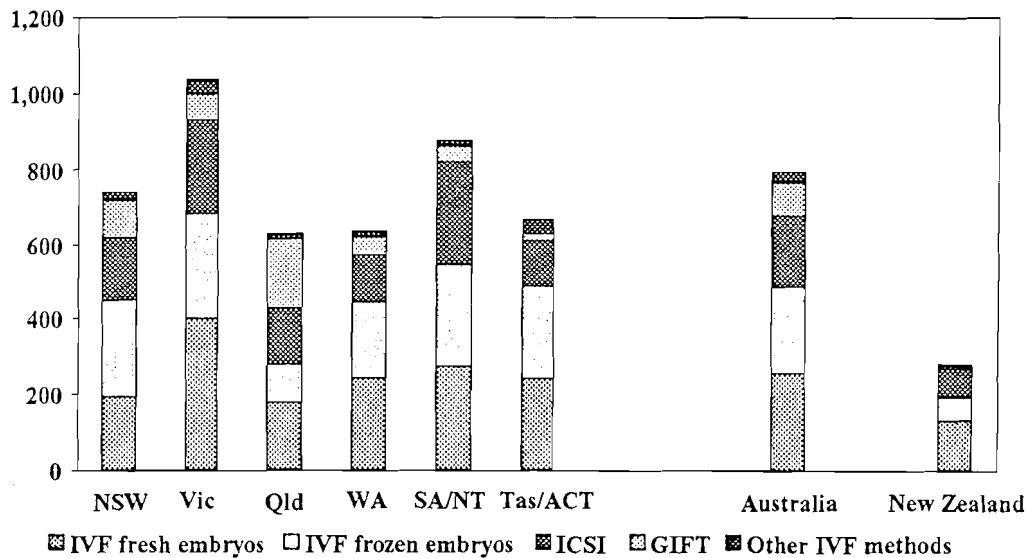
## **Variations in use of assisted conception**

The use of assisted conception to treat infertility can be compared in different populations by relating the number of treatment cycles during a year to the number of women in the reproductive age group. The total number of treatment cycles can be estimated by adding those that reach the stage of oocyte retrieval for IVF and GIFT to the number of transfer cycles for frozen/thawed embryos and donor oocytes. As most women treated by assisted conception are aged between 25 and 44 years, the ratio of the number of treatment cycles is expressed per 100,000 women aged 25-44 years. In the figures for 1996, South Australia and the Northern Territory are reported together because the only IVF clinic in Darwin is a satellite clinic of the Queen Elizabeth Hospital in Adelaide. Also, the figures for Tasmania

and the Australian Capital Territory are combined because there are only three IVF units between the two regions.

There were considerable variations in treatment ratios among the Australian States, and marked differences between Australia and New Zealand (Table 1, Figure 1). In 1996, the treatment ratio in Australia was 794 cycles per 100,000 women, which was 15.9% higher than in 1995. This ratio was almost three times higher than in New Zealand which had a ratio of 278 per 100,000 women, 44.8% higher than in 1995. In Australia, the highest treatment ratios were in Victoria and South Australia and the lowest ratios were in Queensland and Western Australia. As these ratios are based on the States in which the IVF units are located, comparisons between States may be slightly affected by interstate movements of infertile women for treatment. In Victoria and South Australia, there were relatively more treatment cycles for all types of IVF (fresh embryos, frozen embryos and intracytoplasmic sperm injection) than in the other States or New Zealand. In Queensland, GIFT was more likely to be used than elsewhere.

**Figure 1: Ratio of treatment cycles to number of women in reproductive age group, 1996**



## 2 Treatment cycles and pregnancy rates

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As in previous reports, pregnancy rates are expressed per 100 treatment cycles that reach the stage of oocyte retrieval. In treatment cycles in which embryos were transferred after embryo freezing or oocyte donation, pregnancy rates are expressed per 100 embryo transfer cycles.

Between 1991 and 1995, the total number of treatment cycles for all types of assisted conception increased each year from 16,809 in 1991 to 17,874 in 1992, 18,765 in 1993, 20,706 in 1994 and 22,303 in 1995. There was a further increase of 8.2% to 24,121 cycles in 1996. However, between 1993 and 1994, the number of stimulated cycles either for IVF without microinsemination or for GIFT actually declined by 1.8% from 12,512 in 1993 to 12,291 in 1994, followed by a further decline of 7.1% to 11,417 cycles in 1995. This pattern continued in 1996 with a 5.5% decline to 10,910 cycles.

By contrast, following the trend of recent years, the use of microinsemination to treat mainly male infertility continued to increase in 1996. There were 337 oocyte retrieval cycles for these techniques in 1990, 393 in 1991, 812 in 1992, 1,243 in 1993, then the number more than doubled to 2,786 cycles in 1994, increased by another 52.9% to 4,261 cycles in 1995, and increased by a further 36.4% to 5,271 cycles in 1996. All cycles in 1996, and all but 214 cycles in 1994 and 33 in 1995, involved intracytoplasmic sperm injection (ICSI), which has replaced subzonal insemination (SUZI) as the preferred technique. Microinsemination with transfer of fresh or frozen embryos has increased rapidly over recent years, accounting for 19.7% of all types of assisted conception in 1994, 30.0% in 1995 and 35.1% in 1996.

Transfer cycles after embryo freezing increased by 13.7% between 1993 and 1994, by 18.3% between 1994 and 1995, and by another 9.7% between 1995 and 1996. In collecting the data prior to 1994, no distinction was made as to whether or not microinsemination had preceded embryo freezing. In the years 1994 to 1996, embryo transfer cycles without prior microinsemination increased by 2.2% from 4,309 to 4,404 between 1994 and 1995, and increased again by 2.3% to 4,504 in 1996. Transfer cycles after both microinsemination and embryo freezing almost doubled from 929 in 1994 to 1,794 in 1995, and increased a further 28.0% to 2,297 in 1996.

These figures indicate that most of the increase in the total number of treatment cycles for all types of assisted conception in recent years has been due to greater use of microinsemination techniques.

### 2.1 IVF and GIFT treatment cycles and pregnancy rates in 1996

When summary data on treatment cycles and pregnancies for 1996 were reported to the NPSU, the final outcome of all pregnancies conceived in that year was not known. The pregnancy rates for 1996 are therefore based on viable pregnancies of at least 20 weeks' gestation, not pregnancies with live births. As 1% of viable pregnancies result in stillbirths, viable pregnancy rates are marginally higher than live-birth pregnancy rates.

The interpretation of pregnancy rates for the various techniques of assisted conception, and comparison of results in different IVF units, are influenced not only by factors such as the age of treated women and the number of embryos or oocytes transferred but also by the relative use of a constantly changing array of techniques. Combining the results for IVF, ICSI and GIFT (but excluding cycles in which frozen embryos or donor oocytes were transferred), the overall viable pregnancy rate was 14.2 per 100 oocyte retrieval cycles (Table 2). When all techniques of assisted conception are included, the viable pregnancy rate for all cycles in which embryos were transferred was 14.4 per 100 embryo transfer cycles, indicating that 1 in 7 transfer cycles resulted in a viable pregnancy of 20 weeks or more.

IVF units provided summary data on the age of treated women, causes of infertility, drugs used for ovarian stimulation, and the number of embryos or oocytes transferred for treatment cycles which progressed to this stage of treatment. Separate data were given for three groups - IVF, ICSI, and GIFT

(Tables 3 and 4). There were relatively more older women among those treated by assisted conception in 1996, continuing the trend of recent years. The proportion aged 35 years and over was 48.9% for IVF, 42.2% for ICSI, and 44.9% for GIFT (Table 3). The causes of infertility and the drugs used to stimulate ovulation generally showed a pattern similar to that in previous years. The main causes of infertility were tubal abnormalities (33.6%) for women treated by IVF, male factor (67.2%) for ICSI, and unexplained infertility for GIFT (38.3%). For IVF, ICSI and GIFT, the main medications were GnRH analogues, accounting for 89.4%, 92.0% and 95.0%, respectively. In 1996, more than three embryos were transferred in 3.0% of IVF cycles, in 2.5% of ICSI cycles, and in 7.2% of GIFT cycles (Table 4).

In 1996, 8,127 treatment cycles were commenced for IVF with a view to subsequent transfer of fresh embryos to the uterus (Table 5). Oocyte retrieval was attempted in 6,664 cycles and embryos were transferred in 5,520 cycles. There were 1,052 clinical pregnancies (15.8 per 100 oocyte retrieval cycles) and 796 viable pregnancies (11.9 per 100 oocyte retrieval cycles). There were marked variations in pregnancy rates among the individual IVF units. This may be partly attributable to differences in selection criteria, methods of treatment, and the characteristics of infertile couples, or to random fluctuations due to the relatively small number of treatment cycles in some IVF units.

An additional 170 treatment cycles were commenced for tubal transfer of embryos after IVF, less than half the number of cycles commenced in 1995 and less than a third of cycles commenced in 1994. These resulted in 35 clinical pregnancies (21.7 per 100 oocyte retrieval cycles) and 27 viable pregnancies (16.8 per 100 oocyte retrieval cycles).

In 1996, 31 of the 33 IVF units in Australia and New Zealand used microinsemination techniques to treat infertility. Intracytoplasmic sperm injection (ICSI) was the only type of microinsemination used; no units were using subzonal insemination (SUZI) in 1996. Oocyte retrieval was attempted in 5,271 cycles and embryos were transferred in 4,738 cycles (Table 6), resulting in 912 clinical pregnancies (17.3 per 100 oocyte retrieval cycles) and 720 viable pregnancies (13.7 per 100 oocyte retrieval cycles). There were another 81 ICSI transfer cycles in which donor oocytes were used.

The 516 embryo transfer cycles after use of donor oocytes (Table 7) resulted in 110 clinical pregnancies (21.3 per 100 embryo transfer cycles) and 72 viable pregnancies (14.0 per 100 embryo transfer cycles).

There were 2,613 treatment cycles commenced for GIFT in 1996 (Table 8), fewer than in previous years, resulting in 629 clinical pregnancies (27.4 per 100 oocyte retrieval cycles) and 505 viable pregnancies (22.0 per 100 oocyte retrieval cycles). Although the number of GIFT cycles has declined, the pregnancy rates have shown relatively little change.

Data for transfer cycles after embryo freezing are given for conventional IVF (Table 9) and for ICSI (Table 10). There were 4,504 embryo transfer cycles in the first group and 2,297 in the second group. The total of 6,801 transfer cycles in 1996 continued the increasing trend of previous years (4,607 transfer cycles in 1993, 5,238 in 1994, and 6,198 in 1995). After conventional IVF and embryo freezing, there were 655 clinical pregnancies (14.5 per 100 embryo transfer cycles) and 502 viable pregnancies (11.1 per 100 embryo transfer cycles). After ICSI and embryo freezing, the clinical and viable pregnancy rates were 13.8 and 11.1 per 100 embryo transfer cycles, respectively.

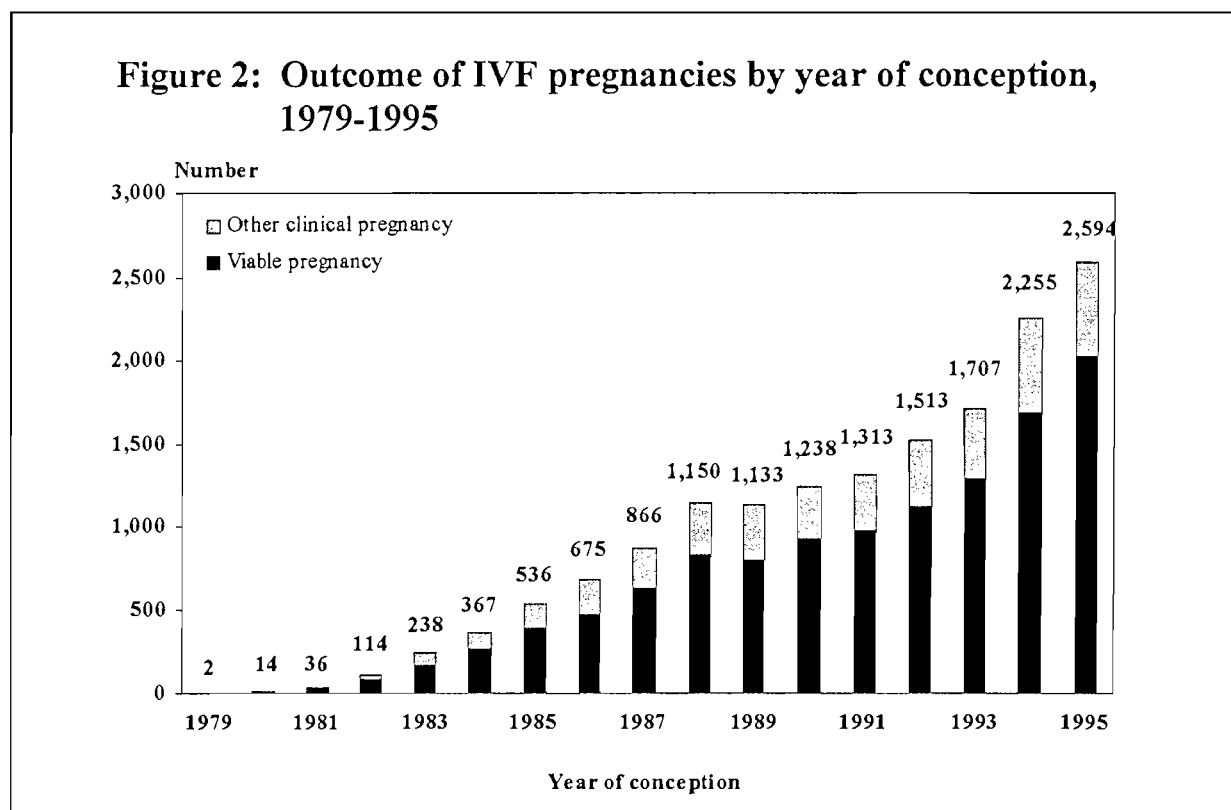
Embryo freezing avoids the necessity for repeated ovarian stimulation in every treatment cycle. As more couples have their infertility treated by IVF, more embryos are frozen each year. In 1996, more than 6,000 couples decided to have their embryos frozen and more than 26,000 embryos were frozen in that year (Table 11). The number of embryos frozen exceeds the number thawed, thus increasing the total number of embryos in storage each year. In 1996, the average number of embryos frozen was 4.3 per patient, while there were 2.4 embryos per patient transferred after thawing. Some thawed embryos (29.4%) were unsuitable for transfer. By the end of 1996, more than 40,000 frozen embryos were in storage. Policies on how long frozen embryos are kept in storage vary among the IVF units. Comparing changes in the number of stored embryos in different IVF units enables review of these policies.



### 3 IVF pregnancies

This section contains data on all pregnancies other than those resulting from GIFT; it therefore includes pregnancies occurring after transfer of fresh embryos to the uterus or fallopian tubes, transfer of frozen/thawed embryos, use of donor oocytes, and the use of ICSI.

There were 2,594 clinical pregnancies after IVF in 1995 (Table 12, Figure 2), more than in any previous year and an increase of 339 (15.0%) above the number in 1994. Live birth was the outcome in 76.8% of the pregnancies in 1995.



#### 3.1 Maternal and paternal characteristics

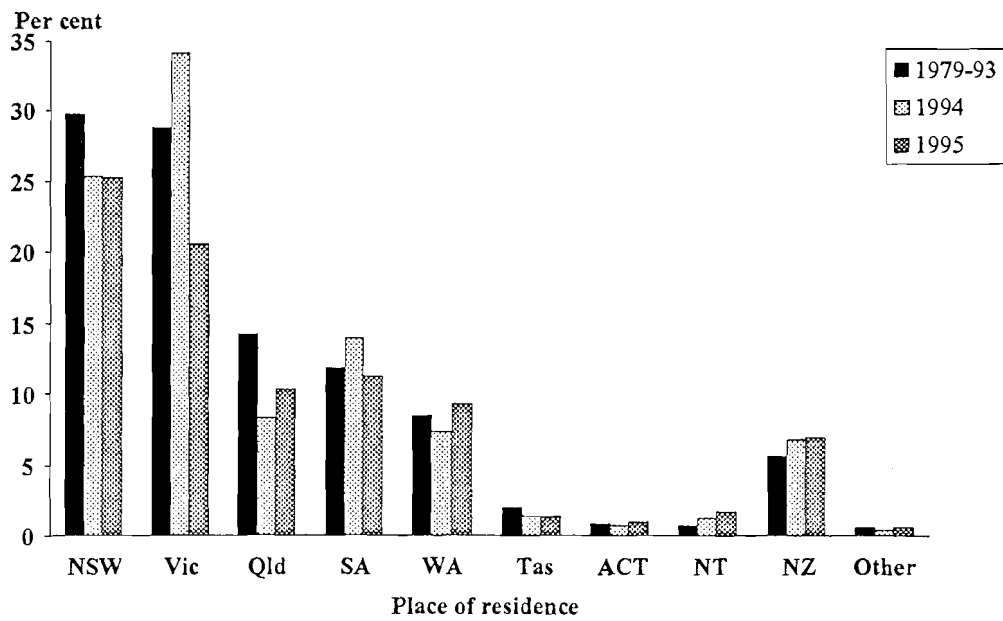
##### 3.1.1 Place of residence

Compared to 1994, there was an increase in the number of IVF pregnancies in all Australian States (except South Australia) and New Zealand in 1995 but a relatively greater proportion of pregnancies were to couples living in Victoria and New South Wales (Table 13, Figure 3).

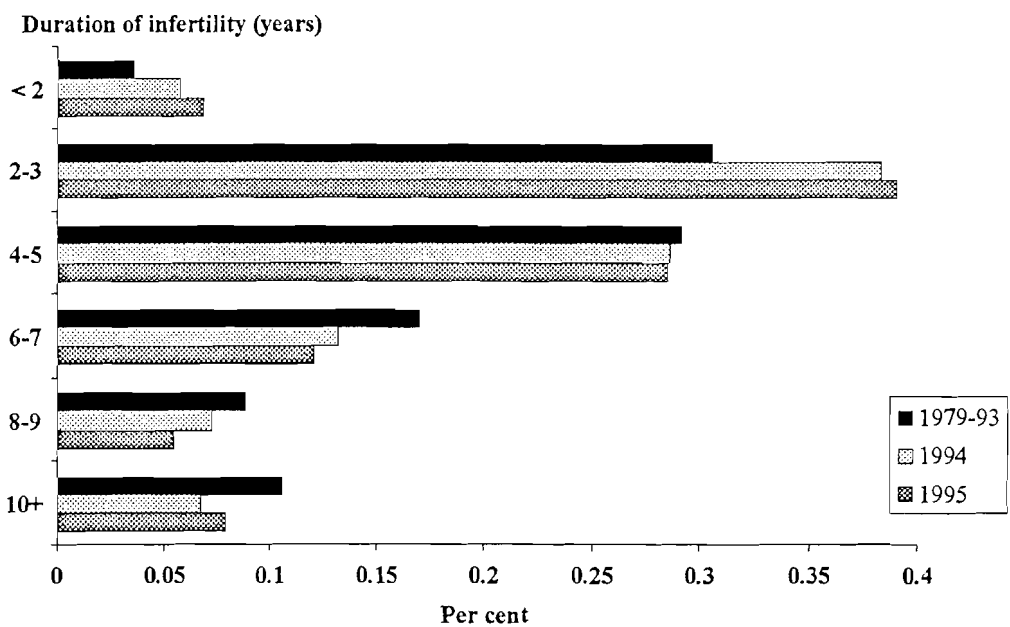
##### 3.1.2 Parental age

The majority (79.8%) of women conceiving by IVF in 1995 were in their 30s or 40s (Table 14). The proportion of women aged 35 years and over was 38.5%, considerably higher than the proportion of 13.3% for all mothers giving birth in Australia. Fathers aged 35 years and over increased from 52.4% in 1994 to 55.4% in 1995; the increase was most pronounced for men aged 45 years and over (Table 15).

**Figure 3: Place of parental residence, IVF pregnancies, 1979-1995**



**Figure 4: Duration of infertility, IVF pregnancies, 1979-1995**



### 3.1.3 Previous pregnancies

Women who conceived in 1995 had similar previous reproductive experiences to those who conceived in earlier years, but there was a slight increase in the proportion of women who had not been pregnant previously (Table 16).

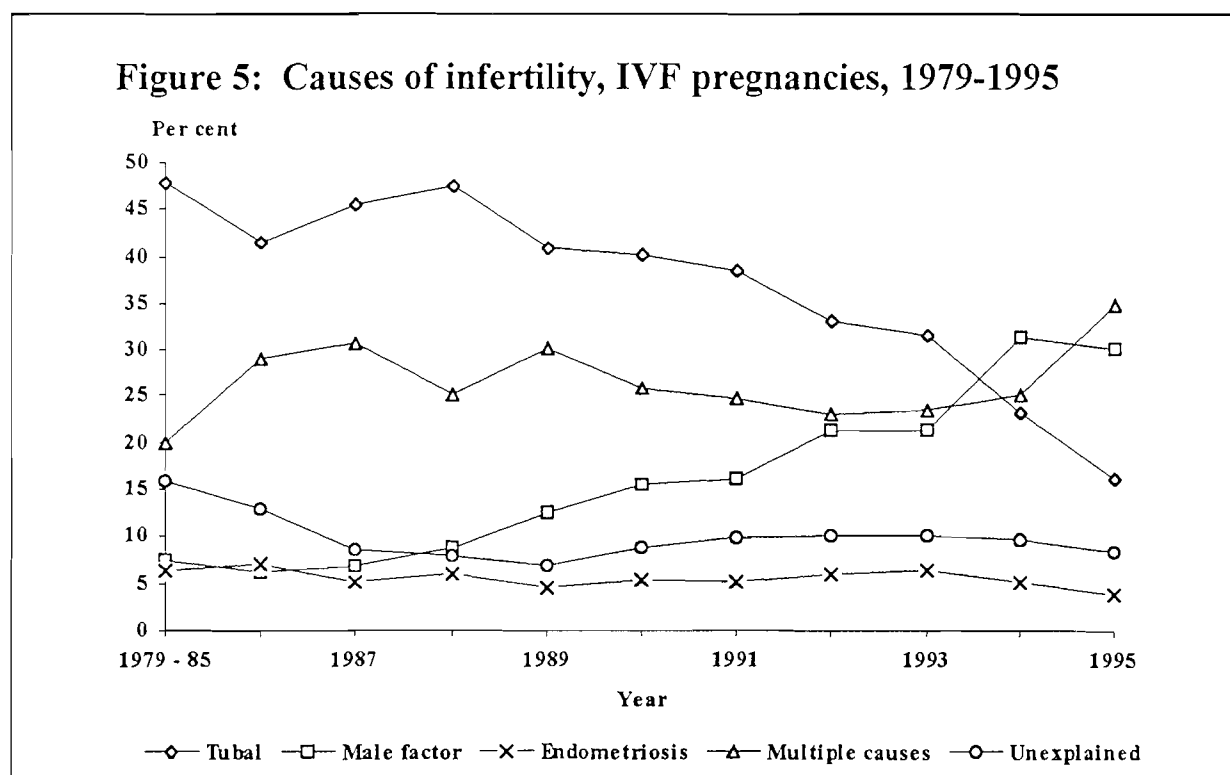
### 3.1.4 Duration of infertility

There were relatively more women with shorter periods of infertility in 1995 than in previous years (Table 17, Figure 4). The proportion of women infertile for a period of less than four years increased from 34.2% in 1979-1993, to 44.0% in 1994 and 45.9% in 1995. Women who had been infertile for 8 years or more were less likely to achieve a live birth than those who had been infertile for shorter periods (Table 18).

### 3.1.5 Causes of infertility

Women conceiving after IVF in 1995 were more likely to have infertility due to male factors only or multiple causes than in previous years (14.1% in 1979-1993, 31.3% in 1994, and 30.0% in 1995, and 25.1% in 1979-1993, 25.2% in 1994, and 34.9% in 1995, respectively) and were less likely to have tubal causes (39.9% in 1979-1993, 23.3% in 1994, and 16.2% in 1995) (Table 19, Figure 5). All other causes of infertility have remained fairly constant over this period.

The proportion of pregnancies resulting in live births was highest for endometriosis and male infertility (80.0% and 78.6%, respectively) and lowest for unexplained infertility (74.7%) (Table 20). Spontaneous abortion was highest for unexplained infertility (21.7%) and lowest for endometriosis (16.0%). Ectopic pregnancy was more likely among women treated for tubal causes of infertility (3.8%) than for other causes. Stillbirth was more likely among women treated for tubal or multiple causes of infertility (1.7%) each than for other causes, but the number of stillbirths in each group was relatively small.

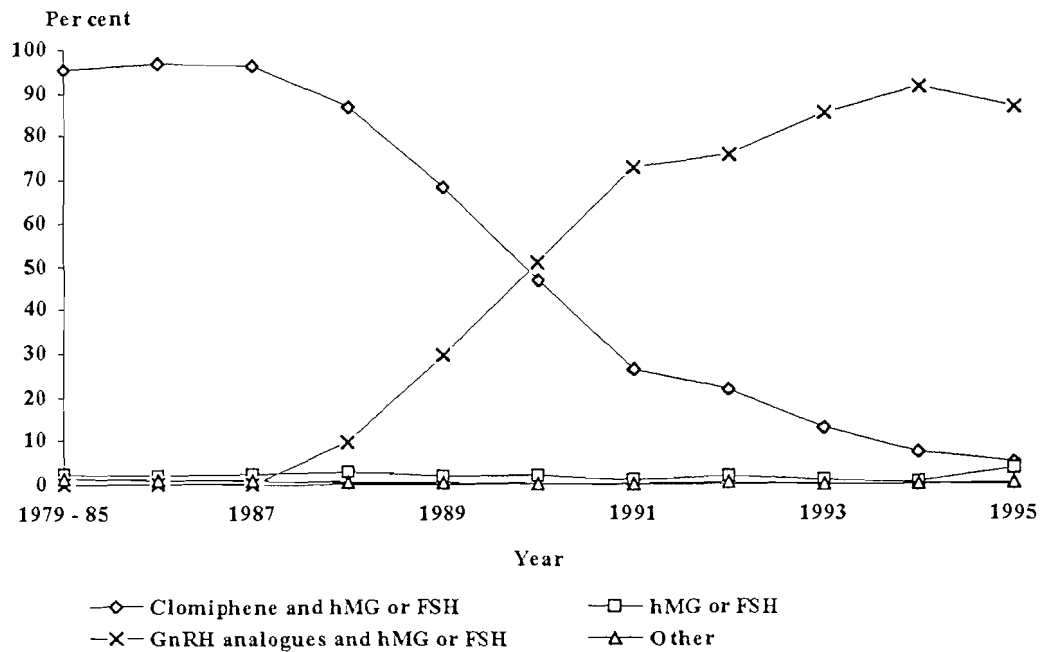


## 3.2 Management of IVF pregnancies

### 3.2.1 Ovarian stimulation

Continuing the trend of recent years, gonadotrophin-releasing hormone analogues (GnRHa) combined with gonadotrophins were the main drugs used for stimulating ovulation. In 1995, these drugs were used in 86.5% of treatment cycles that resulted in IVF pregnancies (Table 21, Figure 6). In recent years the use of clomiphene to stimulate ovulation has declined from over 90% of treatment cycles in the mid-1980s to only 4.9% of treatment cycles in 1995.

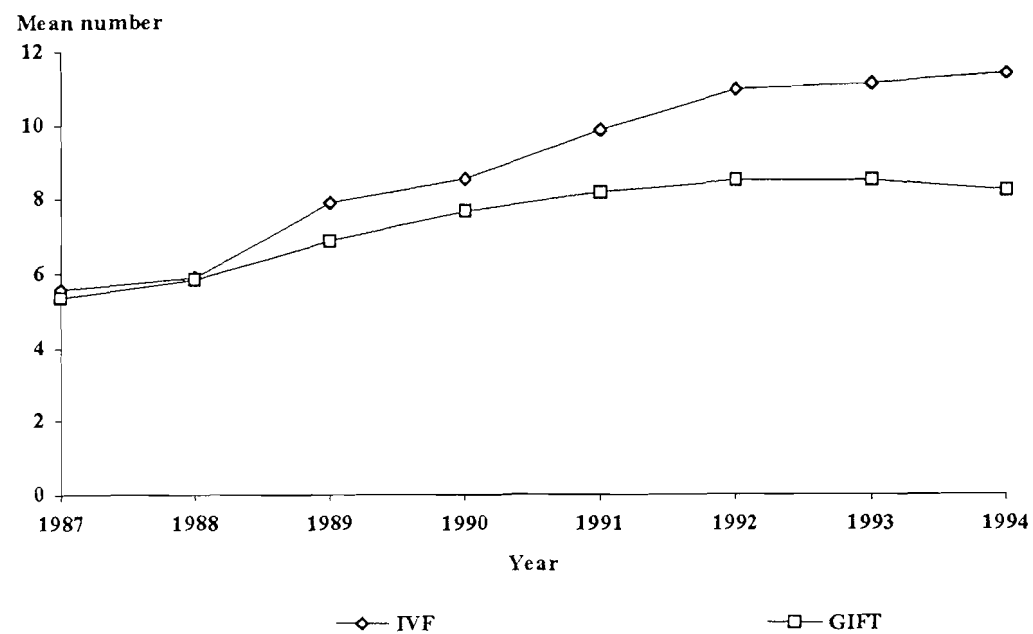
**Figure 6: Drugs used to stimulate ovulation, IVF pregnancies, 1979-1995**



**3.2.2 Treatment cycle in which pregnancy occurred**

Over 40% of IVF pregnancies occurred in the first treatment cycle in 1995 and two-thirds of all IVF pregnancies occurred in the first or second treatment cycle, similar to the proportion in previous years (Table 22).

**Figure 7: Mean number of oocytes collected by laparoscopy or ultrasound guidance, IVF and GIFT pregnancies, 1987-1995**



### 3.2.3 Number of oocytes collected

The average number of oocytes collected by laparoscopy or ultrasound guidance for IVF has continued to increase (Table 23, Figure 7). In 1995, 15 or more oocytes were collected in over a quarter of all treatment cycles and the mean number of oocytes collected was 11.8 per cycle.

### 3.2.4 Number of embryos transferred

There has been a continuing decline in the proportion of IVF pregnancies that resulted from transfer of 4 or more embryos (Figure 8). In 1995, only 1.7% of pregnancies followed transfer of 4 or more embryos (Table 24). More than half of the pregnancies followed transfer of 1 or 2 embryos. An average of 2.3 embryos were transferred in 1995, less than in previous years (Figure 9).

Of the four IVF pregnancies resulting from transfer of more than 4 embryos in 1995, two resulted in spontaneous abortion (Table 25).

### 3.2.5 Donor or frozen gametes and embryos

The number of IVF pregnancies that followed transfer of frozen/thawed embryos has continued to increase from 530 in 1992 to 603 in 1993, 787 in 1994, and 901 in 1995 (Table 26). The number of pregnancies after use of donor embryos or donor oocytes also increased slightly in 1995. The outcome of pregnancies after donor sperm, donor oocytes or frozen embryos was similar to that of all IVF pregnancies (Table 27).

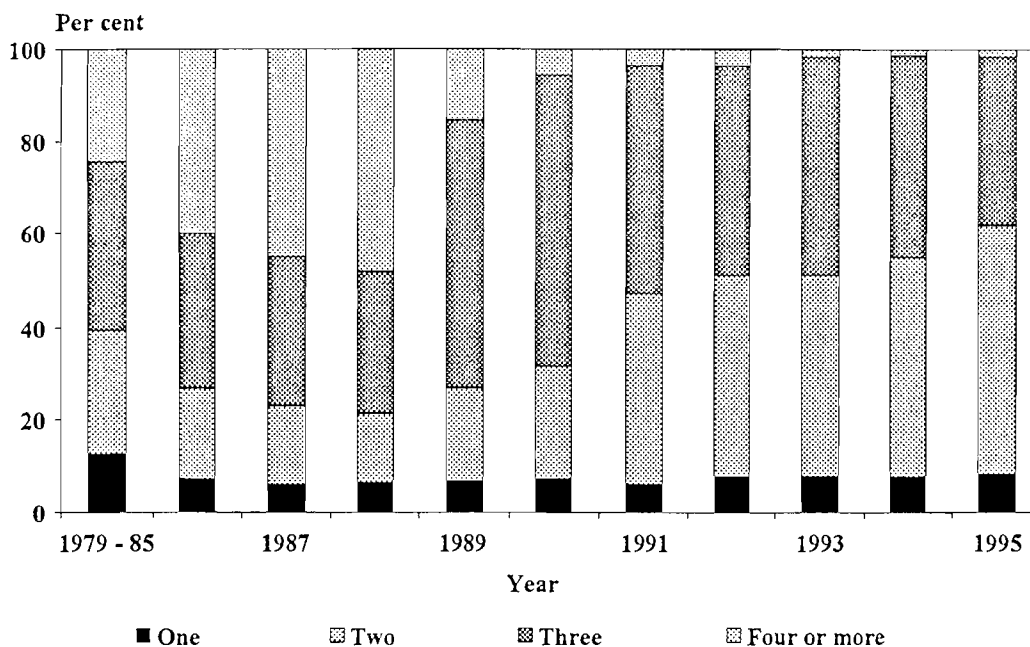
### 3.2.6 Microinsemination

IVF pregnancies after microinsemination increased markedly from 243 in 1990-1993 to 551 in 1994 and 933 in 1995 (Table 28). There were relatively more live births and fewer ectopic pregnancies after microinsemination than among all IVF pregnancies.

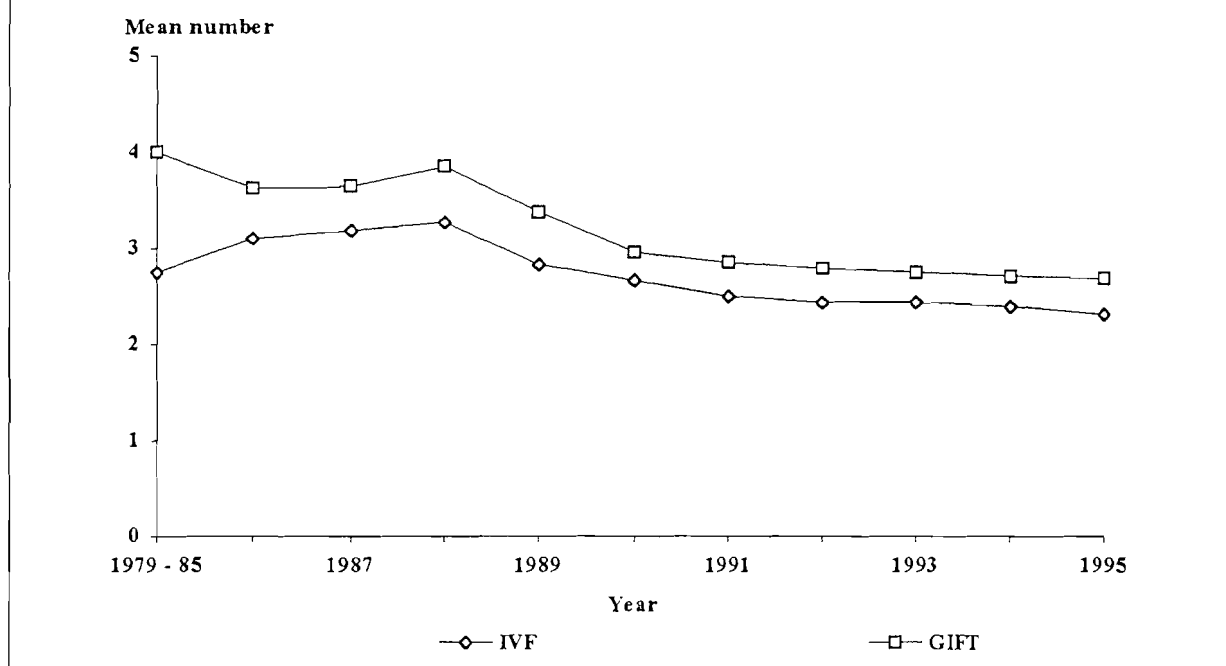
### 3.2.7 Drugs used in luteal phase of pregnancy

Nearly 80% of women who became pregnant in 1995 were treated with drugs during the luteal phase (Table 29). Human chorionic gonadotrophin (hCG) and progesterone were the most commonly used drugs.

**Figure 8: Percentage distribution of number of embryos transferred, IVF pregnancies, 1979-1995**



**Figure 9: Mean number of embryos/oocytes transferred, IVF and GIFT pregnancies, 1979-1995**



### 3.3. Outcome of pregnancy

#### 3.3.1 Maternal deaths

No maternal deaths were recorded for women who conceived by IVF in 1995. There have been two maternal deaths reported in IVF pregnancies among a total of 15,751 pregnancies.

#### 3.3.2 Maternal age and outcome of pregnancy

The proportion of women who achieve a live birth after conceiving by IVF decreases with advancing maternal age. A little over three-quarters of women aged less than 35 years gave birth to liveborn infants compared with 69.5% among women aged 35 to 39 years and 56.9% among women aged 40 years and over (Table 30). Spontaneous abortion and termination of pregnancy were more likely among women of 40 years and over.

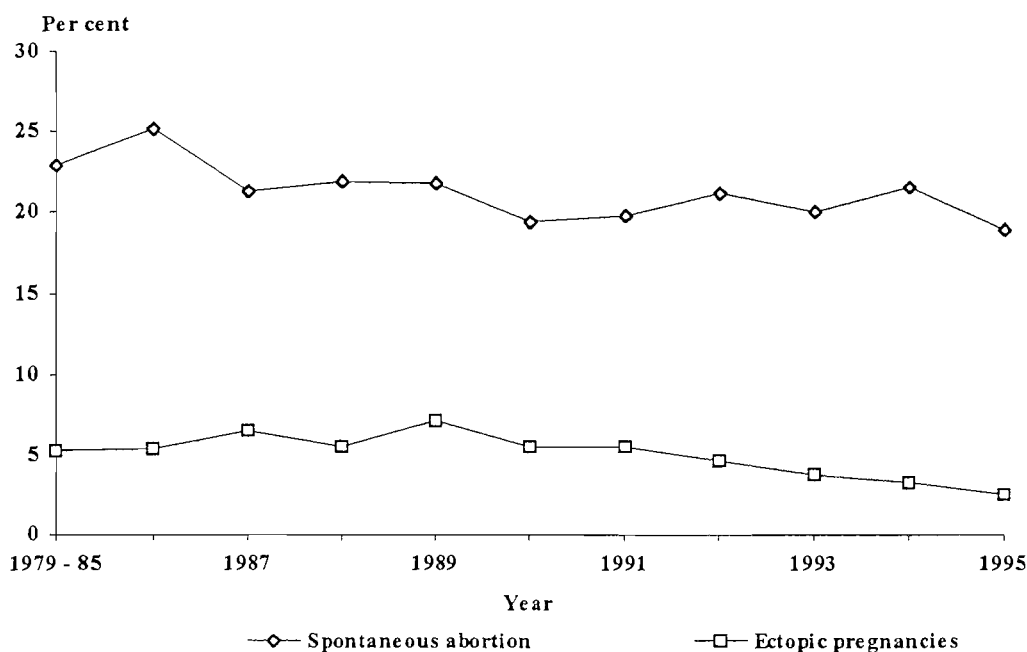
#### 3.3.3 Spontaneous abortion

There has been little change in the rate of spontaneous abortion in IVF pregnancies in recent years (Table 31, Figure 10). Spontaneous abortion was more likely for older women, increasing from 16.4% for women less than 25 years to 45.1% for women 45 years and over, but only 0.3% of women were in this oldest age group (Table 32, Figure 11). Among 1,727 pregnancies conceived after microinsemination in 1990-1995, there were 328 (19.0%) spontaneous abortions (Table 28).

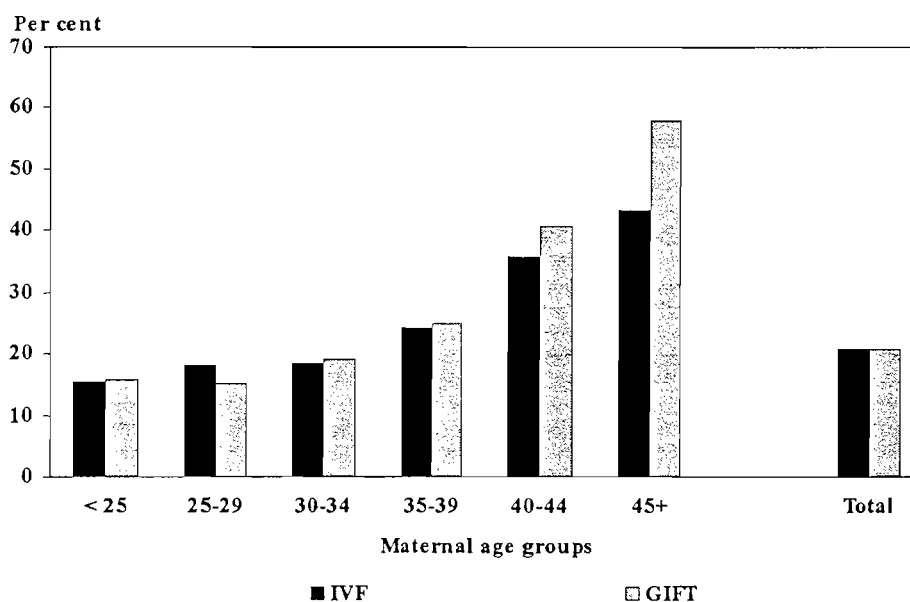
#### 3.3.4 Ectopic pregnancy

The proportion of ectopic pregnancies declined from 5.5% in 1979-92 to 3.7% in 1993, 3.3% in 1994, and 2.5% in 1995 (Table 33, Figure 10). This declining trend is partly attributable to relatively fewer ectopic pregnancies among the increasing proportion of women whose infertility was due to male factors. Among 1,727 pregnancies conceived after microinsemination in 1990-1995, there were 31 (1.8%) ectopic pregnancies (Table 28).

**Figure 10: Incidence of ectopic pregnancy and spontaneous abortion, IVF pregnancies, 1979-1995**



**Figure 11: Spontaneous abortions by maternal age groups, IVF and GIFT pregnancies, 1979-1995**



### 3.3.5 Heterotopic pregnancies

Heterotopic pregnancies are those in which there is both a uterine and tubal (ectopic) pregnancy simultaneously. The uterine pregnancy may abort or may continue on to a birth. Heterotopic pregnancies are uncommon. Since assisted conception began in Australia and New Zealand, 141 cases of heterotopic pregnancies (88 leading to abortion and 53 continuing to a birth) have been reported, accounting for 0.6% of all assisted conception pregnancies. There were no reported heterotopic

pregnancies prior to 1984 and the first GIFT heterotopic pregnancy was reported in 1986. There have been 6 ICSI heterotopic pregnancies (2 leading to abortion and 4 continuing to a birth). Heterotopic pregnancies after IVF have declined from 0.9% in 1979-89 to 0.3% in 1994 and 0.4% in 1995 (Table 34).

### **3.3.6 Selective reduction of fetuses**

Selective reduction of fetuses may be performed in early pregnancy to abort a severely malformed fetus in a multiple pregnancy or to avoid multiple births. There were 4 IVF and 2 GIFT pregnancies notified after selective reduction of pregnancies conceived in 1995. Fetal reduction had previously been performed in 2 pregnancies in 1988, 1 in 1989, 1 in 1990, 9 in 1991, 6 in 1992, 6 in 1993 and 10 in 1994. In 1995, 3 fetuses were reduced to 2 in 3 IVF and 2 GIFT pregnancies, and 4 fetuses were reduced to 2 in 1 IVF pregnancy. The indication for fetal reduction was a congenital malformation in one GIFT pregnancy: cranial encephalocele reduced from 3 fetuses to 2. None of the selective reductions in IVF pregnancies were for fetal malformations. There were no spontaneous abortions of remaining fetuses after selective reduction in these 6 IVF and GIFT pregnancies.

### **3.3.7 Complications of pregnancy**

Significant complications of pregnancy are recorded in tick boxes on the forms used to notify information about the women conceiving by assisted conception and their pregnancies. No information was given for the data item on complications in 2,007 (18.9%) of the 10,620 pregnancies conceived after IVF in the period from 1990 to 1995. Among the other 8,613 pregnancies for which information was recorded, threatened abortion was reported in 5.5%, placenta praevia in 1.2%, antepartum haemorrhage in 1.9% and pregnancy-induced hypertension in 6.2% (Table 35). Other complications such as maternal medical conditions, fetal growth restriction and premature labour were reported in 17.8% of IVF pregnancies. Any comparison of these reported complications between IVF and other pregnancies should take account of how the information is collected and also the incomplete recording of this data item.

### **3.3.8 Viable pregnancies of at least 20 weeks' gestation**

Reflecting the overall increase in the number of IVF pregnancies conceived in 1995, there was a considerable increase in births. In Australia, there were 2,282 births after IVF in 1995 compared with 1,850 infants conceived in 1994, 1,420 conceived in 1993 and 1,237 conceived in 1992. In New Zealand, the numbers of infants were 169 for 1995 conceptions, 153 for 1994, 116 for 1993, and 99 for 1992.

Preterm births of less than 37 weeks' gestation occurred in 24.0% of all IVF pregnancies in 1995 (Table 36), more than in recent years. The incidence of preterm births was higher with increasing plurality, ranging from 13.2% for singleton IVF pregnancies to 65.9% for twin pregnancies and 100.0% for triplet pregnancies. Preterm births among singleton IVF pregnancies declined to their lowest level of 12.8% in 1994 (Figure 12), increasing slightly to 13.2% in 1995, but the rates were over double that for all Australian singleton pregnancies (5.7% in 1994 and 5.8% in 1995).

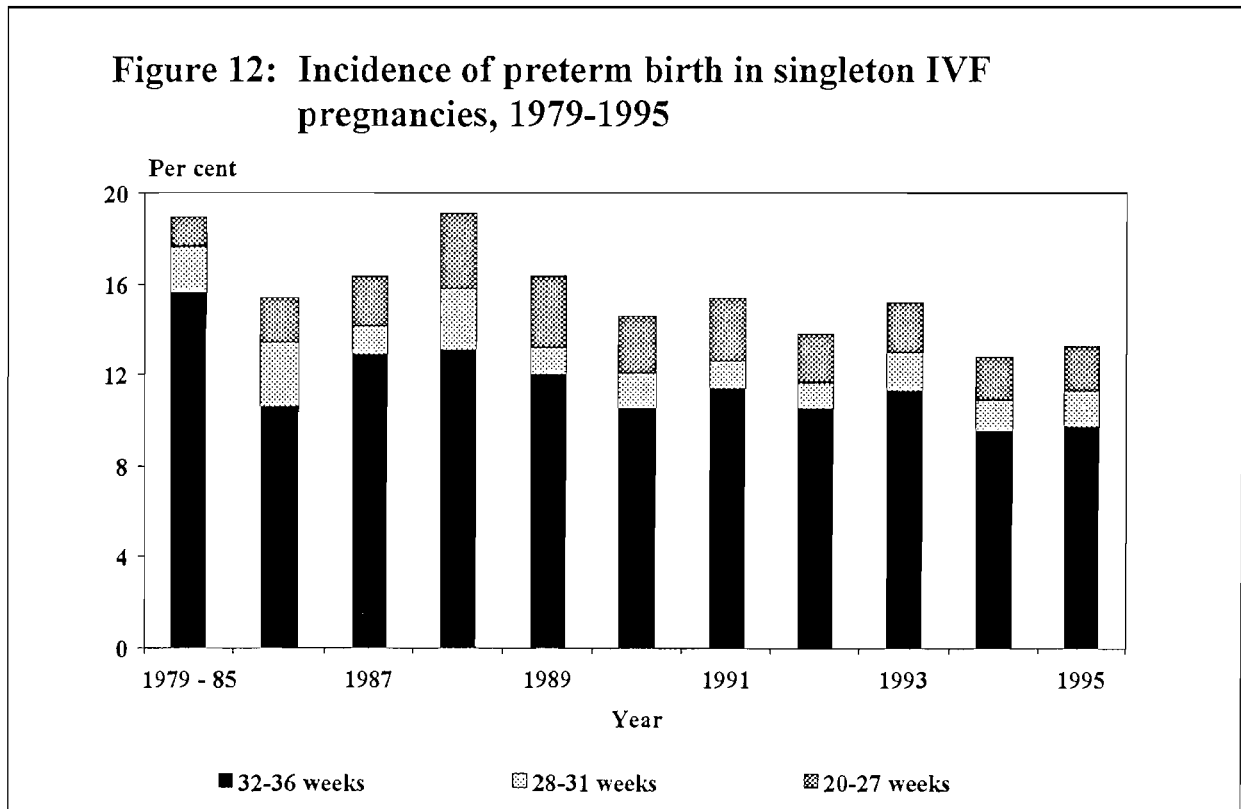
After microinsemination, the incidence of preterm pregnancies in 1990-1995 was 21.4% for all pregnancies, 12.1% for singleton pregnancies and 58.1% for twin pregnancies (Table 37), slightly less than that for all IVF pregnancies.

In 1995, preterm births occurred in 12.0% of 92 singleton IVF births after use of donor sperm, in 15.5% of 58 births after use of donor oocytes, and in 10.6% of 595 births after use of frozen embryos (Table 38).

As in previous years, there was a high proportion of preterm births among singleton IVF pregnancies in all maternal age groups (Table 39) and for all causes of infertility (Table 40). The proportion increased with advancing maternal age from 11.0% for mothers aged 25-29 years to 16.7% for those aged 40 and



over. Mothers aged under 25 years had a much higher rate of premature birth (22.2%). Preterm birth was less likely if infertility was due to endometriosis (10.2%) than if it was due to other causes, and most likely if infertility was due to tubal causes (15.5%).



### 3.3.9 Multiple pregnancies

Multiple pregnancy occurred in 19.4% of IVF pregnancies in 1995, more than the proportion of 16.8% in 1994 (Table 41) and much higher than that for all Australian births (1.4% in 1995). Twin IVF pregnancies increased slightly from 15.1% in 1994 to 17.7% in 1995 (Figure 13), and there were 1.6% and 1.7% triplet pregnancies in 1994 and 1995, respectively (Figure 14). One quadruplet pregnancy occurred in 1994.

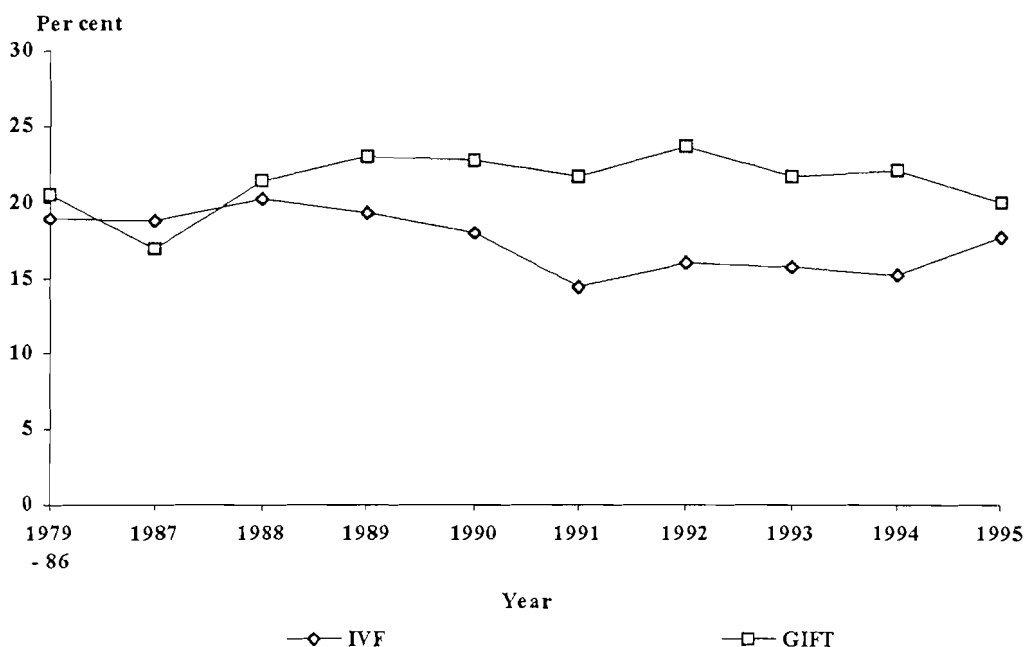
Multiple pregnancy was more likely after transfer of fresh embryos than after transfer of frozen/thawed embryos. For the combined years up to 1995, twins occurred in 18.8%, and triplets in 2.7%, of pregnancies after transfer of fresh embryos. Among pregnancies after transfer of frozen embryos, twins occurred in 12.5% and triplets in 0.8%.

The likelihood of multiple pregnancy depends on the number of embryos transferred. In 1995, twins occurred in 17.9% of IVF pregnancies after transfer of 2 embryos, in 21.3% after transfer of 3 embryos, and in 24.1% after transfer of 4 embryos (Table 42). Among 1,355 pregnancies conceived after microinsemination in 1990-1995, there were 251 multiple births (18.5%); twins occurred in 227 (16.8%), triplets in 23 (1.7%) and quadruplets in 1 (0.1%).

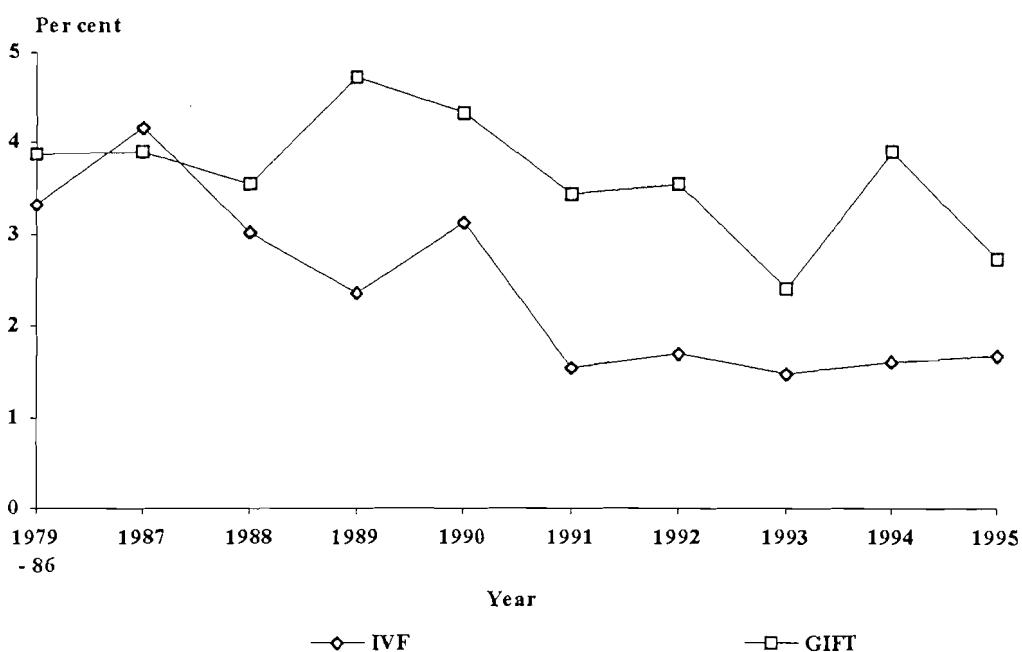
### 3.3.10 Multiple pregnancies by State/Territory and country and by IVF unit, 1993-1995

Multiple pregnancies after assisted conception were slightly less common in Australia (19.8%) than in New Zealand (20.9%) (Table 43, Figure 15). Queensland and Western Australia had the highest multiple pregnancy rates, 24.5% and 24.1%, respectively, and New South Wales had the lowest, 18.1%. There were relatively more triplets, and other higher order multiple births, in Queensland (4.2%) and Western Australia (3.2%) than in the other States. In all States except South Australia and the Northern Territory, multiple pregnancy rates were 25% to 50% higher in GIFT pregnancies than in IVF pregnancies.

**Figure 13: Incidence of twin pregnancy, IVF and GIFT, 1979-1995**

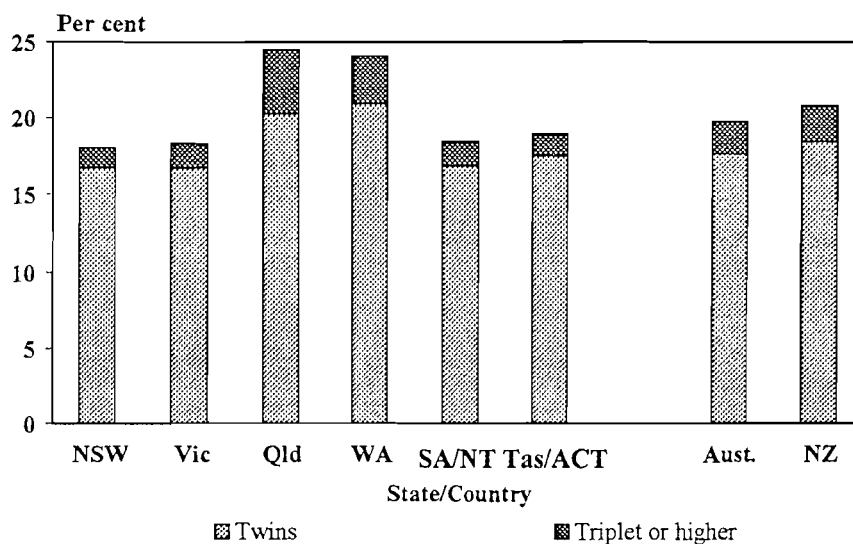


**Figure 14: Incidence of triplet pregnancy, IVF and GIFT, 1979-1995**



Multiple pregnancies were more common among mothers using assisted conception (17.8% twin pregnancies, 2.1% triplet or higher multiple pregnancies) than for all mothers (Table 44). Multiple pregnancy rates varied between IVF units, ranging from 6.6% to 29.4%. Some of this variability may be due to the relatively small numbers of pregnancies reported in many of the units (42.9% reported fewer than 100 pregnancies, and 64.3% reported fewer than 200 in the period from 1993 to 1995). When only the larger IVF units with at least 100 reported pregnancies were considered, multiple pregnancy rates ranged from 12.4% (among 233 pregnancies) to 25.7% (among 873 pregnancies). Overall, multiple pregnancies occurred in 19.9% (among 6,990 pregnancies) of all IVF and GIFT pregnancies in the 3-year period.

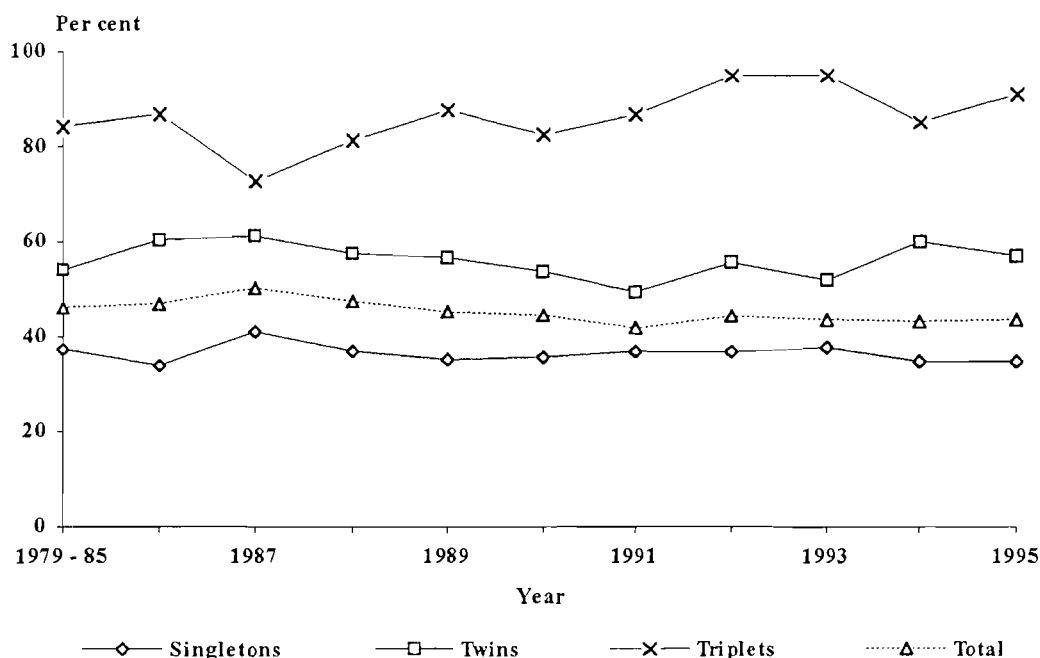
**Figure 15: Multiple pregnancies after assisted conception, Australia and New Zealand, 1993-1995**



### 3.3.11 Method of delivery

As in previous years, caesarean rates were higher for multiple than for singleton IVF pregnancies (Figure 16). In 1995, the caesarean rate was 35.5% for singleton pregnancies, 58.5% for twin pregnancies and 91.2% for triplet pregnancies (Table 45). The caesarean rate for singleton IVF pregnancies was considerably higher than the rate of 19.0% for singleton Australian births in 1995. The caesarean rate for singleton IVF pregnancies increased with maternal age, from 30.6% for mothers under 30 years of age to 68.0% for mothers aged 45 years and over.

**Figure 16: Caesarean birth rates, singleton and multiple IVF pregnancies, 1979-1995**



### 3.3.12 Sex of infants

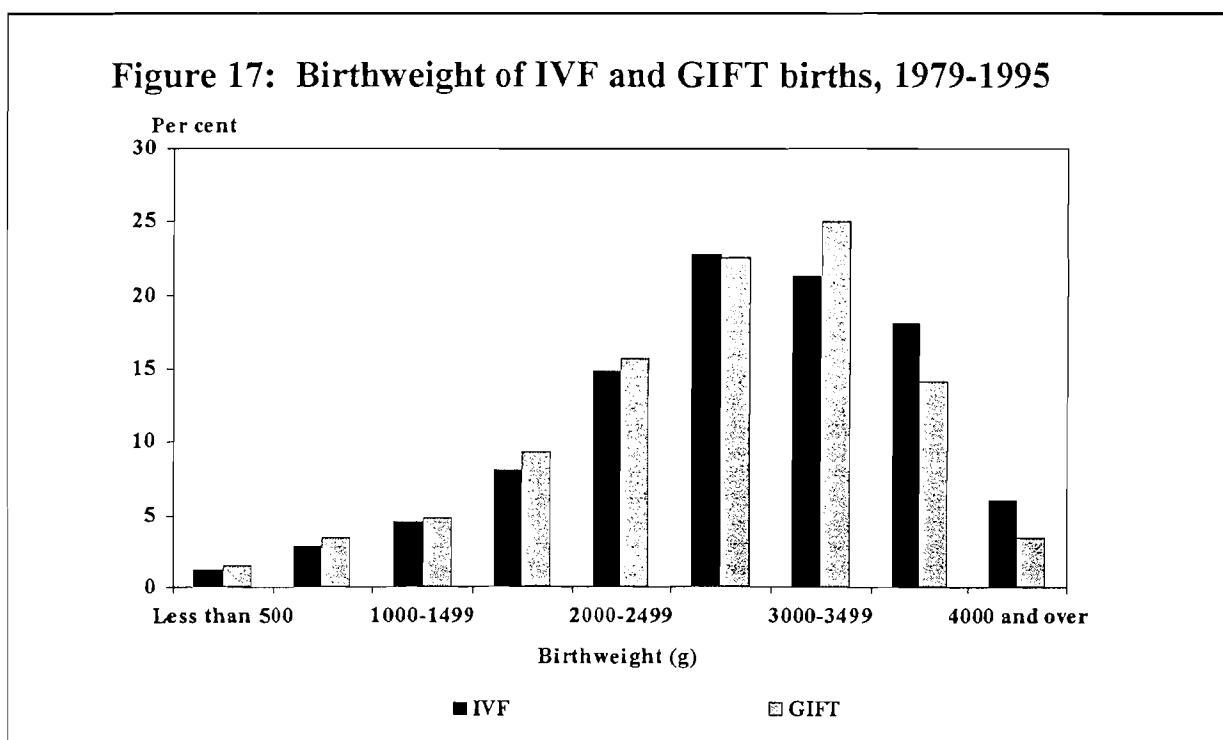
The sex ratio of infants born after IVF was 99.2 in 1995, different to that in previous years (Table 46). The sex ratio of infants born in all years after use of donor sperm was 97.2 among 1,068 births; after use of donor oocytes, it was 109.9 among 296 births; and after use of frozen embryos, it was 110.9 among 2,520 births. Among the 1,630 births after microinsemination, the sex ratio was 92.9.

### 3.3.13 Birthweight

The mean birthweight and the incidence of low birthweight (less than 2500g) for infants born after IVF in 1995 differed considerably from the birthweights for all Australian births in 1995. The mean birthweight of IVF births in 1995 was 2,889g (Table 47), 469g less than the mean birthweight of 3,358g for all Australian births in 1995. The high incidence of multiple births after IVF accounted for much of this difference (Table 48). For singleton births, the mean birthweight was 3,245g after IVF and 3,387g for all Australian births; for twins, 2,262g and 2,388g, respectively; and for triplets, 1,582g and 1,665g, respectively. Among singleton IVF births in 1995, low birthweight occurred in 10.1%, compared with 5.1% for all singleton births in Australia in 1995.

The mean birthweight of 1,103 singleton births after microinsemination was 3,244g (Table 49), similar to that for all singleton IVF births. Low birthweight occurred in 10.5% of singleton births after microinsemination, in 10.5% after donor sperm, in 14.1% after donor oocytes, and in 8.0% after embryo freezing (Table 50).

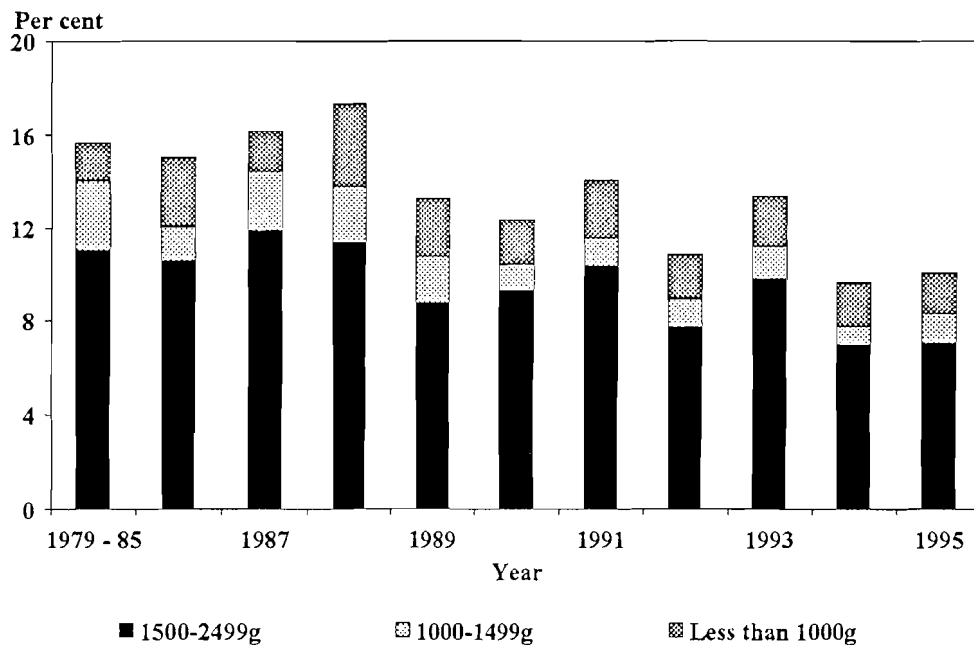
There were relatively fewer low birthweight infants born after IVF than after GIFT (Figure 17) and the incidence of low birthweight in singleton IVF births was lower in 1994 than in previous years, increasing just slightly in 1995 (Figure 18).



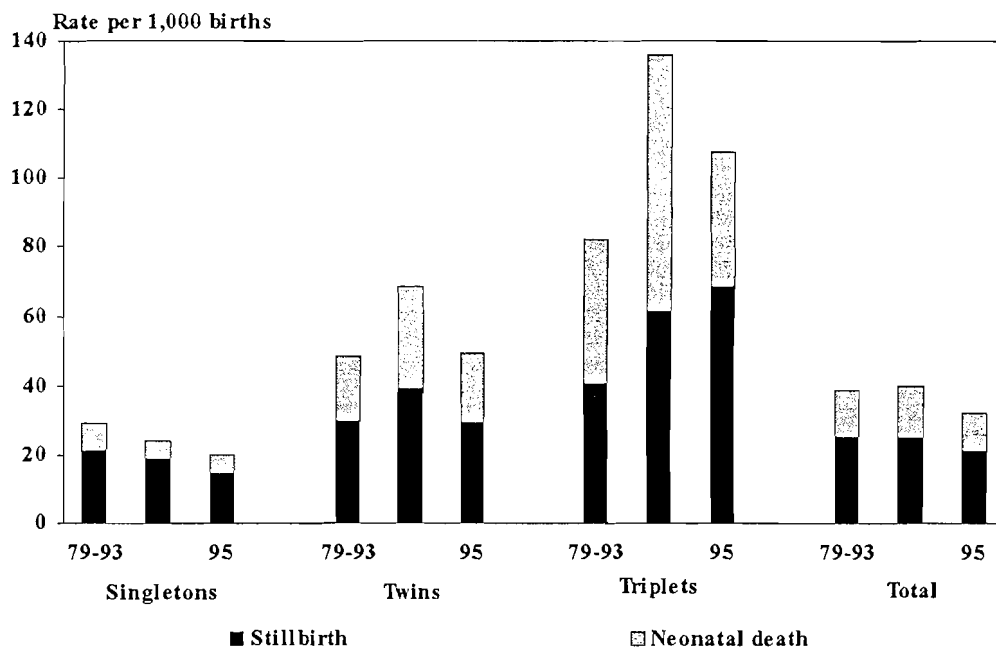
### 3.3.14 Perinatal mortality

Perinatal deaths include fetal deaths (stillbirths) of at least 20 weeks' gestation and neonatal deaths of liveborn infants occurring within 28 days of birth. The perinatal death rate for all IVF births in 1995 was 31.8 per 1,000 births (Table 51), lower than in previous years (Figure 19); for singleton births, it was 19.6 per 1,000 births, for twins, 48.7 per 1,000 births, and for triplets, 107.8 per 1,000 births. Among 1,630 births after microinsemination in 1990-1995, the perinatal death rate was 34.5 per 1,000 births; for singleton births, it was 20.0 per 1,000 births, for twins, 59.9 per 1,000 births, and for triplets, 101.4 per 1,000 births.

**Figure 18: Incidence of low birthweight in singleton IVF births, 1979-1995**



**Figure 19: Perinatal mortality in singleton and multiple IVF births, 1979-1995**



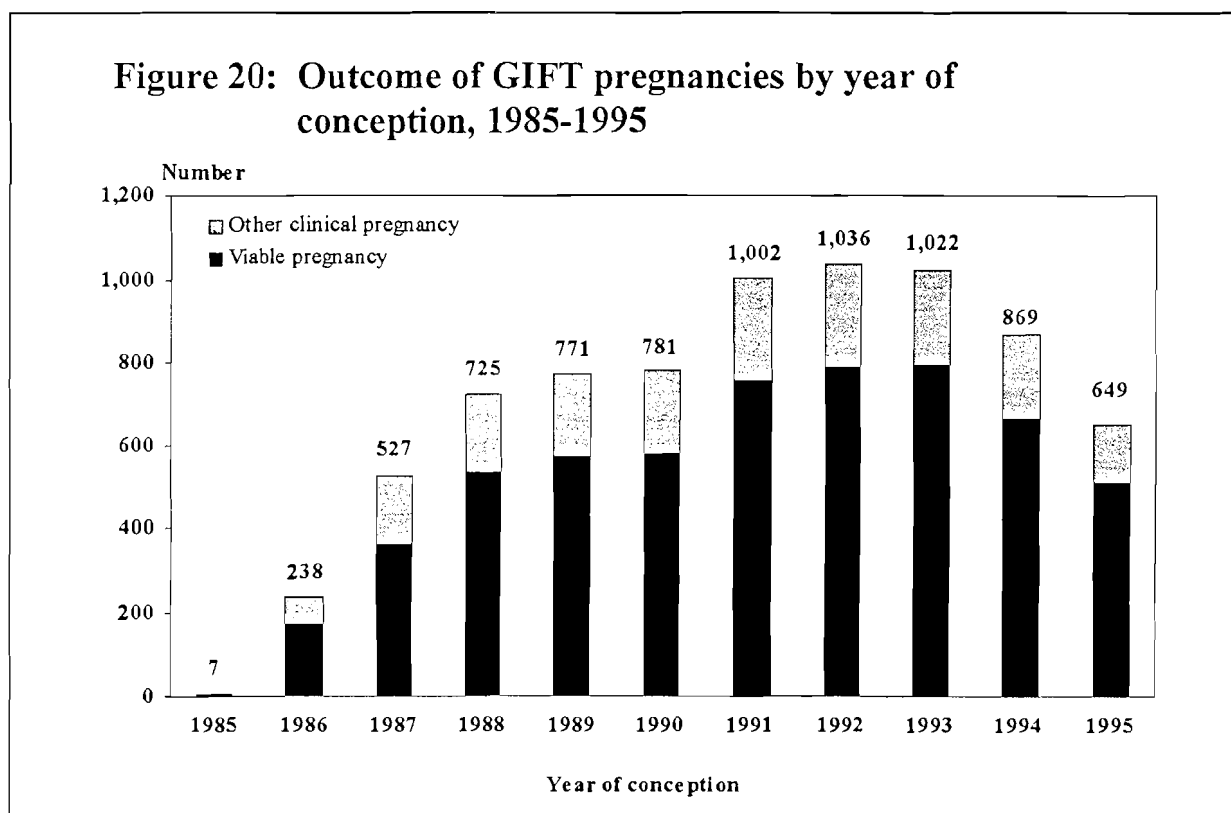
### **3.3.15 Congenital malformations**

Among 14,300 live births, stillbirths and induced abortions of at least 16 weeks' gestation after IVF in 1979-1995, there were 361 (2.5%) infants and fetuses with major congenital malformations (Table 52). The malformation rate was higher in singleton births (2.8%) than in multiple births (2.0%).

Among pregnancies conceived in 1990-1995 after treatment of male infertility by microinsemination, there were 10 pregnancies terminated for fetal abnormality and 1,630 births. Major congenital malformations were notified in 51 fetuses and infants, a malformation rate of 3.1%. There were 40 (3.6%) malformations among 1,103 singleton pregnancies and 11 (2.1%) among 527 multiple births.

## 4 GIFT pregnancies

The number of GIFT pregnancies declined substantially in 1994 and 1995, after showing little change between 1991 and 1993 (Table 53, Figure 20). There were 1,002 GIFT pregnancies in 1991, 1,036 in 1992, 1,022 in 1993, with only 869 in 1994 and 649 in 1995. In 1995, 77.5% of GIFT pregnancies resulted in live births, similar to the proportion in previous years.



### 4.1 Maternal and paternal characteristics

#### 4.1.1 Place of residence

In 1995, New South Wales and Queensland continued to have a relatively high proportion of GIFT pregnancies (35.4% and 35.0%, respectively) and there was a decline in the proportion in Victoria and Western Australia (Table 54).

#### 4.1.2 Parental age

Maternal and paternal ages for GIFT pregnancies in 1995 were slightly older than those in previous years (Tables 55 and 56). Fathers were relatively older than mothers, with more than two times as many fathers aged 40 years and over. In 1985-1995, 5.2% of mothers and 17.7% of fathers were in this age group. Women who became pregnant after GIFT were generally older than the mothers of all babies born in Australia, and slightly younger than those who became pregnant after IVF. In 1995, 35.2% of GIFT pregnancies were to women aged 35 years and over, compared with 38.5% of IVF pregnancies and 13.3% of all Australian births.

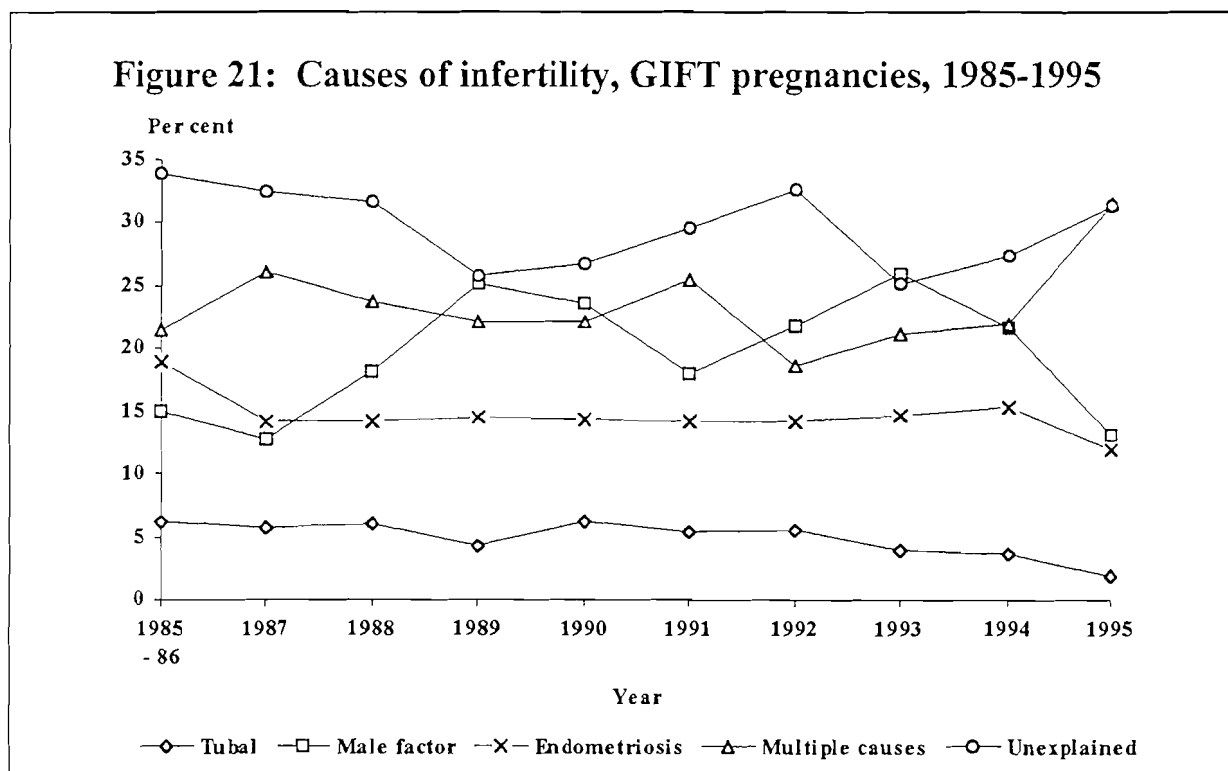
#### 4.1.3 Previous pregnancies

Women who conceived by GIFT in 1995 were slightly more likely to have been pregnant more than once previously than those who had conceived by GIFT in earlier years (Table 57).

#### 4.1.4 Duration and causes of infertility

Among women conceiving by GIFT in 1995, more than 50% had been infertile for periods of less than 4 years, similar to 1994 but relatively more than in earlier years (Table 58). The likelihood of spontaneous abortion was lowest with a duration of infertility of 4-7 years (Table 59), however infertile couples of 4-7 years had the highest likelihood of ectopic pregnancies (3.1%) and stillbirths (2.6%), as well as the most likely to have a live birth (80.2%).

The causes of infertility that preceded GIFT pregnancies in 1995 were different to those in previous years (Table 60, Figure 21). In 1995 there were relatively fewer tubal and male factor causes of infertility and relatively more with multiple causes of infertility than in 1994. Three-quarters (77.5%) of GIFT pregnancies resulted in live births (Table 61).



## 4.2 Management of GIFT pregnancies

### 4.2.1 Ovarian stimulation

The trend of increasing use of GnRH analogues (89.7%) and declining use of clomiphene (7.6%) to induce ovulation (Table 62) was very similar to that for IVF pregnancies (Figure 7). Over half (51.5%) of GIFT pregnancies occurred in the first treatment cycle in 1995, and another quarter (24.3%) occurred in the second cycle, slightly lower than in 1994 (Table 63).

### 4.2.2 Number of oocytes collected and transferred

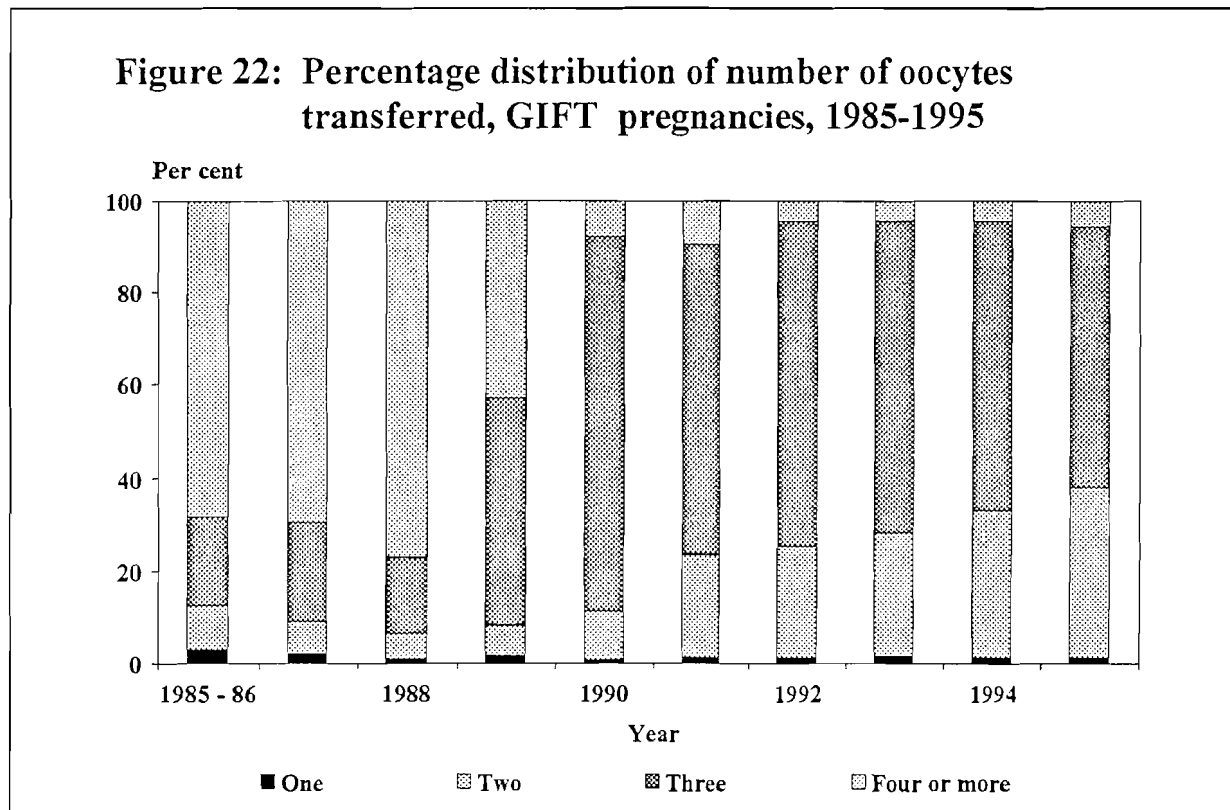
The mean number of oocytes collected in treatment cycles that resulted in GIFT pregnancies was 8.3 in 1995 (Table 64), the same as in 1994 but much lower than the mean of 11.8 for IVF pregnancies (Figure 8). In 1995, 15 or more oocytes were collected in 10.4% of all treatment cycles, similar to 1994.

In 1995, 94.2% of GIFT pregnancies followed transfer for three or fewer oocytes (Table 65), compared with 95.5% in 1994. There was an increasing trend in pregnancies after transfer of 2 oocytes (Figure 22). The proportion of pregnancies with live births varied with the number of oocytes transferred (Table 66); the small number of women who had one oocyte, or more than 4 oocytes, transferred were least likely to have a live birth (62.5% and 42.9%, respectively) and women having 2 oocytes transferred were the most likely to have a live birth (79.3%).



### 4.2.3 Drugs used in luteal phase of pregnancy

Most women (92.4%) who became pregnant after GIFT in 1995 were treated with drugs during the luteal phase (Table 67). Human chorionic gonadotrophin (hCG) and Proluton were the most commonly used drugs, in 73.8% and 13.1% of GIFT pregnancies, respectively.



## 4.3 Outcome of pregnancy

### 4.3.1 Maternal deaths

Three maternal deaths have been reported in GIFT pregnancies, but there were no deaths in 1995.

### 4.3.2 Spontaneous abortion and ectopic pregnancy

Among more than 7,500 GIFT pregnancies conceived between 1985 and 1995, spontaneous abortion was the outcome in 20.7% (Table 68).

In 1995, spontaneous abortion occurred in 18.5% of intrauterine GIFT pregnancies, less than in previous years (Table 69). Older women had higher rates of spontaneous abortion - 43.7% for those aged 40-44 years and 57.9% for those aged 45 and over (Table 70).

Ectopic pregnancy occurred in 2.2% of GIFT pregnancies in 1995, slightly less than in previous years (Table 71).

### 4.3.3 Heterotopic pregnancies

Heterotopic pregnancies after GIFT have declined from 0.9% in 1985-89 to 0.2% in 1994 and 1995 (Table 72).

#### **4.3.4 Complications of pregnancy**

The comments under this heading in Section 3.3.7 should be noted. Information was not recorded for this data item in 1,148 (21.4%) of the 5,359 pregnancies conceived after GIFT between 1990 and 1995. Among 4,211 GIFT pregnancies for which information was recorded, threatened abortion was reported in 6.6%, placenta praevia in 0.9%, antepartum haemorrhage in 2.6%, pregnancy-induced hypertension in 7.2%, and other complications in 20.2% (Table 73).

#### **4.3.5 Viable pregnancies of at least 20 weeks' gestation**

Reflecting the overall decline in the number of GIFT pregnancies in 1995, the number of births in Australia decreased from 1,023 in 1992 to 1,006 in 1993, 667 in 1994, and 638 in 1995. There were very few births after GIFT in New Zealand - 9 in 1992, 5 in 1993, 7 in 1994 and 6 in 1995. The total of 2,920 births after IVF and GIFT in Australia in 1995 represented 1.1% of the national births.

Preterm birth occurred in 24.3% of all GIFT pregnancies in 1995 (Table 74), similar to other years, and in 12.5% of singleton pregnancies, in 58.6% of twin pregnancies, and in 100.0% of triplet pregnancies. In singleton GIFT pregnancies, there was a higher incidence of preterm birth for births to mothers in the 35 and over age group (Table 75). Relatively lower rates of preterm birth occurred when infertility was due to tubal or male factors (Table 76), but there were few pregnancies in these groups.

#### **4.3.6 Multiple pregnancies**

Twins occurred in 20.0% of GIFT pregnancies in 1995 (Table 77), similar to the rate in recent years but higher than for IVF (Figure 14). The triplet rate increased from its lowest value of 2.5% in 1993 to 2.7% in 1995, but lower than the rate in the years prior to 1993 (Figure 15). In 1995, there was 1 quadruplet pregnancy and no quintuplet pregnancies.

In 1995, as in previous years, higher multiple pregnancy rates were associated with transfer of an increasing number of oocytes (Table 78). Multiple pregnancies did not occur after transfer of one oocyte, but did occur in 18.7% after transfer of two oocytes, in 25.8% after three oocytes, and in 19.0% after 4 oocytes.

#### **4.3.7 Method of delivery**

Caesarean birth rates for GIFT pregnancies were higher for multiple births than for singleton births (Table 79). In 1995, the caesarean rate was 31.6% in singleton pregnancies, 57.4% in twin pregnancies, and 92.3% in triplet pregnancies. In singleton GIFT pregnancies, the caesarean rate was 20.0% for mothers aged less than 25 years, 26.9% for those aged 25-29, 30.4% for those aged 30-34, 41.3% for those aged 35-39, and 49.2% for mothers aged 40 years and over.

#### **4.3.8 Sex of infants**

The sex ratio of infants born after GIFT in 1995 was 102.5, similar to that for previous years (Table 80).

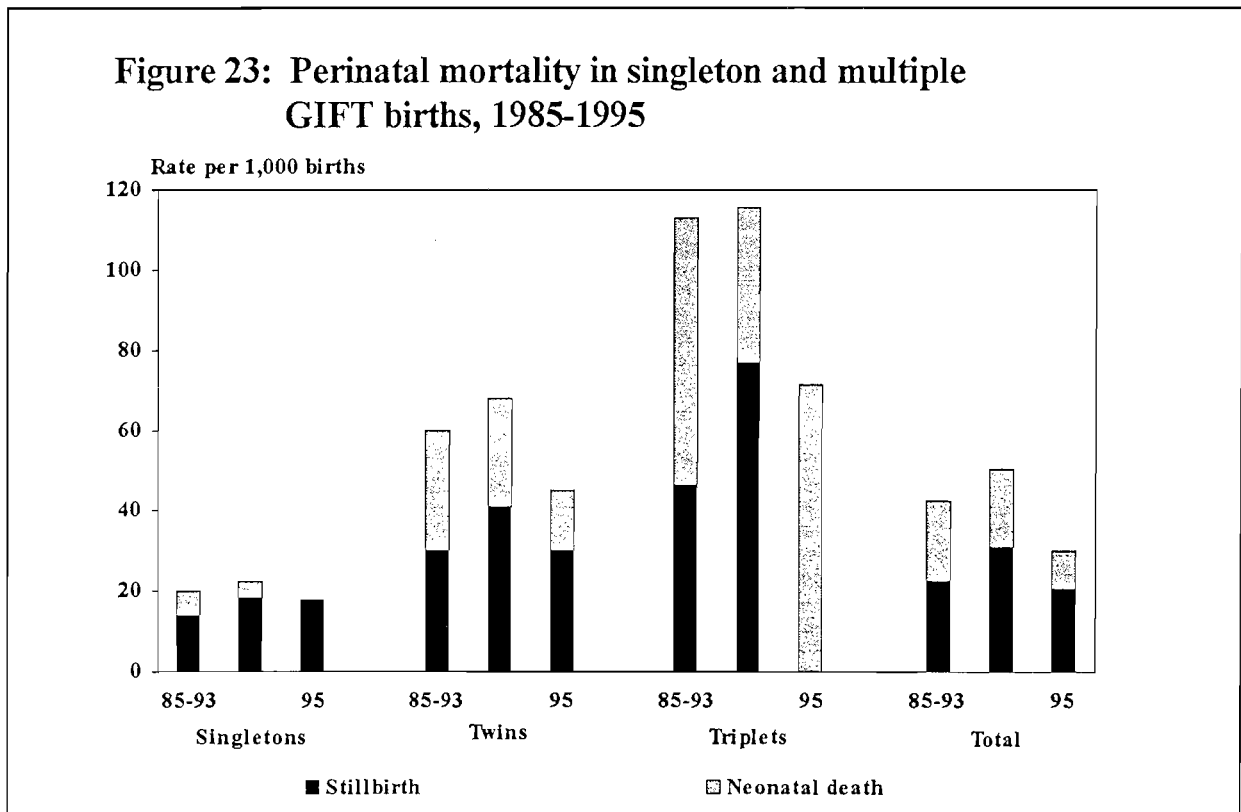
#### **4.3.9 Infant's birthweight**

The mean birthweight of 2,803g after GIFT in 1995 (Table 81) was slightly higher than that of 2,773g in previous years but less than the average of 2,889g after IVF. The high incidence of multiple births after GIFT accounted for much of this difference (Table 82). In 1995, for singleton GIFT births, the mean birthweight was 3,134g; for twins, it was 2,371g; and for triplets, it was 1,859g.

In 1995, low birthweight occurred in 31.3% of all GIFT pregnancies (Table 82), slightly less than the rate of previous years (34.7%). There were relatively more low birthweight infants born after GIFT than after IVF (Figure 17). Low birthweight was more likely with increasing plurality, ranging from 13.5% for singleton GIFT births to 52.5% for twins and 90.5% for triplets.

#### 4.3.10 Perinatal mortality

The perinatal death rate after GIFT in 1995 was 29.5 per 1,000 births (Table 83), lower than the total rate of 41.9 per 1,000 births in previous years. There were relatively fewer stillbirths in 1995; the stillbirth rate in that year was 20.2 per 1,000 births compared with 22.7 per 1,000 in previous years (Figure 23). Of the 19 perinatal deaths after GIFT in 1995, 12 (63.2%) were in multiple births.



#### 4.3.11 Congenital malformations

Major congenital malformations occurred in 191 (2.5%) of 7,491 births and induced abortions after GIFT in the period from 1985 to 1995 (Table 84). The malformation rate of 2.8% in singleton births was slightly higher than that of 2.2% in multiple births.

## 5 Tables

**Table 1: Use of assisted conception to treat infertility, selected States, Australia and New Zealand, 1996**

State / Country	Women aged 25-44 years (thousands)	Treatment cycles*	Ratios**
New South Wales	955	7,060	739
Victoria	715	7,410	1,036
Queensland	513	3,235	631
Western Australia	278	1,770	636
South Australia***	255	2,240	879
Australian Capital Territory and Tasmania	123	819	666
Australia	2,839	22,534	794
New Zealand	572	1,587	278

\* Includes IVF fresh, IVF frozen, GIFT, ICSI, tubal transfer and donor oocytes/embryos

\*\* Treatment cycles per 100,000 women aged 25-44 years

\*\*\* Includes external unit based in the Northern Territory

**Table 2. Viable pregnancy rates for all techniques of assisted conception, 1996**

Type of assisted conception	Oocyte retrieval cycles	Embryo/ gamete transfer cycles	Viable pregnancies	Viable pregnancy rate per 100 oocyte retrievals	Viable pregnancy rate per 100 embryo transfers
IVF: fresh embryos	6,664	5,520	796	11.9	14.4
ICSI: fresh embryos	5,271	4,738	720	13.7	15.2
IVF: frozen embryos	-	4,504	502	-	11.1
ICSI: frozen embryos	-	2,297	254	-	11.1
IVF: donor oocytes	-	516	72	-	14.0
GIFT	2,292	2,250	505	22.0	22.4
<b>All techniques</b>	<b>14,227 *</b>	<b>19,825</b>	<b>2,849</b>	<b>14.2 *</b>	<b>14.4</b>

\* Exclude data on cycles with frozen embryos and donor oocytes

**Table 3. Oocyte retrieval cycles for IVF, ICSI and GIFT, by age, cause of infertility, and drugs used to stimulate ovulation, 1996**

Characteristic	Oocyte retrieval cycles attempted					
	IVF		ICSI		GIFT	
	Number	Per cent	Number	Per cent	Number	Per cent
<b>Maternal age (at start of treatment)</b>						
<20	4	0.1	5	0.1	-	-
20-24	103	1.5	145	2.8	38	1.6
25-29	955	14.2	976	18.8	396	16.8
30-34	2,371	35.2	1,874	36.1	863	36.6
35-39	2,297	34.1	1,545	29.8	654	27.7
40+	997	14.8	641	12.4	406	17.2
<b>All ages</b>	<b>6,727</b>	<b>100.0</b>	<b>5,186</b>	<b>100.0</b>	<b>2,357</b>	<b>100.0</b>
<b>Cause(s) of infertility</b>						
Tubal only	2,394	33.6	125	2.4	94	4.0
Other female only	725	10.2	118	2.2	580	24.6
Male factors only	1,036	14.5	3,562	67.2	414	17.6
Multiple causes	1,389	19.5	1,120	21.1	365	15.5
Unexplained	1,577	22.1	379	7.1	902	38.3
<b>All causes</b>	<b>7,121</b>	<b>100.0</b>	<b>5,304</b>	<b>100.0</b>	<b>2,355</b>	<b>100.0</b>
<b>Ovarian stimulation</b>						
GnRH analogues + other	6,291	89.4	4,862	92.0	2,238	95.0
No GnRH analogues	-					
· clomiphene + any other	556	7.9	340	6.4	100	4.2
· other drugs	16	0.2	10	0.2	7	0.3
· natural cycles	177	2.5	71	1.3	10	0.4
<b>Total</b>	<b>7,040</b>	<b>100.0</b>	<b>5,283</b>	<b>100.0</b>	<b>2,355</b>	<b>100.0</b>

**Table 4. Embryo transfer cycles for IVF, ICSI and GIFT, by number of embryos or oocytes transferred, 1996**

Number of embryos / oocytes transferred	Embryo transfer cycles					
	IVF		ICSI		GIFT	
	Number	Per cent	Number	Per cent	Number	Per cent
One	843	14.8	633	13.4	103	4.6
Two	2,830	49.8	2,458	51.9	986	43.8
Three	1,841	32.4	1,522	32.2	1,000	44.4
Four	163	2.9	114	2.4	125	5.6
Five	3	0.1	5	0.1	16	0.7
Six or more	2	0.0	-	-	20	0.9
<b>Total</b>	<b>5,682</b>	<b>100.0</b>	<b>4,732</b>	<b>100.0</b>	<b>2,250</b>	<b>100.0</b>

**Table 5. IVF pregnancies after transfer of fresh embryos to uterus, numbers and pregnancy rates in each IVF unit, 1996**

Stage of treatment	IVF unit											
	A	B	C	D	E	F	G	H	I	J	K	L
Treatment cycles commenced	1,457	1,356	695	591	230	302	372	205	141	286	232	94
Cycles with oocyte retrieval	1,081	1,099	626	507	215	248	277	198	133	230	190	92
Cycles with embryo transfer	827	888	551	457	162	211	235	145	88	202	165	76
Clinical pregnancies	109	190	90	101	36	42	53	27	10	46	44	8
Viable pregnancies	86	145	60	78	18	32	45	21	6	35	37	8
Clinical pregnancies per 100 oocyte retrieval cycles	10.1	17.3	14.4	19.9	16.7	16.9	19.1	13.6	7.5	20.0	23.2	8.7
Viable pregnancies per 100 oocyte retrieval cycles	8.0	13.2	9.6	15.4	8.4	12.9	16.2	10.6	4.5	15.2	19.5	8.7

Stage of treatment	IVF unit											
	M	N	O	P	Q	R	S	T	U	V	W	X
Treatment cycles commenced	190	220	91	176	207	88	173	74	160	108	53	181
Cycles with oocyte retrieval	160	198	81	123	180	52	122	54	132	89	46	165
Cycles with embryo transfer	120	176	75	99	173	41	102	48	103	71	41	150
Clinical pregnancies	12	37	9	14	29	6	24	9	20	22	6	38
Viable pregnancies	9	31	7	8	21	5	18	7	13	16	4	29
Clinical pregnancies per 100 oocyte retrieval cycles	7.5	18.7	11.1	11.4	16.1	11.5	19.7	16.7	15.2	24.7	13.0	23.0
Viable pregnancies per 100 oocyte retrieval cycles	5.6	15.7	8.6	6.5	11.7	9.6	14.8	13.0	9.8	18.0	8.7	17.6

Stage of treatment	IVF unit										Total
	Y	Z	AA	AB	AC	AD	AE	AF	AG		
Treatment cycles commenced	87	-	58	59	58	57	39	7	80		8,127
Cycles with oocyte retrieval	87	-	26	44	55	53	37	5	59		6,664
Cycles with embryo transfer	82	-	19	38	39	50	32	4	50		5,520
Clinical pregnancies	15	-	7	6	13	7	3	1	18		1,052
Viable pregnancies	14	-	6	5	10	3	3	1	15		796
Clinical pregnancies per 100 oocyte retrieval cycles	17.2	-	26.9	13.6	23.6	13.2	8.1	20.0	30.5		15.8
Viable pregnancies per 100 oocyte retrieval cycles	16.1	-	23.1	11.4	18.2	5.7	8.1	20.0	25.4		11.9

**Table 6. IVF pregnancies after ICSI, numbers and pregnancy rates in each IVF unit, 1996**

Stage of treatment	IVF unit											
	A	B	C	D	E	F	G	H	I	J	K	L
Treatment cycles commenced	980	774	426	629	288	280	123	233	185	109	237	218
Cycles with oocyte retrieval	947	672	390	558	272	245	98	229	173	96	195	208
Cycles with embryo transfer	821	620	370	519	229	213	86	204	141	88	187	181
Clinical pregnancies	122	130	68	114	51	37	28	40	15	19	54	16
Viable pregnancies	94	107	49	89	38	30	28	31	10	15	44	16
Clinical pregnancies per 100 oocyte retrievals	12.9	19.3	17.4	20.4	18.8	15.1	28.6	17.5	8.7	19.8	27.7	7.7
Viable pregnancies per 100 oocyte retrievals	9.9	15.9	12.6	15.9	14.0	12.2	28.6	13.5	5.8	15.6	22.6	7.7

Stage of treatment	IVF unit											
	M	N	O	P	Q	R	S	T	U	V	W	X
Treatment cycles commenced	82	125	188	103	85	84	53	66	26	77	85	28
Cycles with oocyte retrieval	75	119	168	78	76	84	39	58	21	66	77	28
Cycles with embryo transfer	68	109	155	67	74	77	32	55	14	51	76	28
Clinical pregnancies	10	30	36	10	16	13	9	10	4	8	11	14
Viable pregnancies	7	24	25	7	14	11	7	7	4	7	8	10
Clinical pregnancies per 100 oocyte retrievals	13.3	25.2	21.4	12.8	21.1	15.5	23.1	17.2	19.0	12.1	14.3	50.0
Viable pregnancies per 100 oocyte retrievals	9.3	20.2	14.9	9.0	18.4	13.1	17.9	12.1	19.0	10.6	10.4	35.7

Stage of treatment	IVF unit									Total
	Y	Z	AA	AB	AC	AD	AE	AF	AG	
Treatment cycles commenced	105	-	52	58	38	58	13	5	-	5,813
Cycles with oocyte retrieval	103	-	43	50	36	49	13	5	-	5,271
Cycles with embryo transfer	98	-	38	44	30	46	13	4	-	4,738
Clinical pregnancies	29	-	6	5	3	2	1	1	-	912
Viable pregnancies	24	-	4	4	3	1	1	1	-	720
Clinical pregnancies per 100 oocyte retrievals	28.2	-	14.0	10.0	8.3	4.1	7.7	20.0	-	17.3
Viable pregnancies per 100 oocyte retrievals	23.3	-	9.3	8.0	8.3	2.0	7.7	20.0	-	13.7

**Table 7. IVF pregnancies after use of donor oocytes, numbers and pregnancy rates in each IVF unit, 1996**

Stage of treatment	IVF unit											
	A	B	C	D	E	F	G	H	I	J	K	L
Cycles with embryo transfer	108	130	33	36	-	25	33	5	31	4	16	4
Clinical pregnancies	25	26	5	7	-	6	3	1	11	1	4	1
Viable pregnancies	15	21	3	3	-	4	2	1	6	1	3	1
Clinical pregnancies per 100 embryo transfers	23.1	20.0	15.2	19.4	-	24.0	9.1	20.0	35.5	25.0	25.0	25.0
Viable pregnancies per 100 embryo transfers	13.9	16.2	9.1	8.3	-	16.0	6.1	20.0	19.4	25.0	18.8	25.0

Stage of treatment	IVF unit											
	M	N	O	P	Q	R	S	T	U	V	W	X
Cycles with embryo transfer	-	14	3	7	1	26	5	7	5	4	-	-
Clinical pregnancies	-	5	-	2	-	2	2	1	1	-	-	-
Viable pregnancies	-	5	-	1	-	-	1	-	-	-	-	-
Clinical pregnancies per 100 embryo transfers	-	35.7	-	28.6	-	7.7	40.0	14.3	20.0	-	-	-
Viable pregnancies per 100 embryo transfers	-	35.7	-	14.3	-	-	20.0	-	-	-	-	-

Stage of treatment	IVF unit									Total
	Y	Z	AA	AB	AC	AD	AE	AF	AG	
Cycles with embryo transfer	3	-	5	1	2	1	1	-	6	516
Clinical pregnancies	-	-	3	1	1	-	-	-	2	110
Viable pregnancies	-	-	3	-	1	-	-	-	1	72
Clinical pregnancies per 100 embryo transfers	-	-	60.0	100.0	50.0	-	-	-	33.3	21.3
Viable pregnancies per 100 embryo transfers	-	-	60.0	-	50.0	-	-	-	16.7	14.0



**Table 8. GIFT pregnancies, numbers and pregnancy rates in each IVF unit, 1996**

Stage of treatment	IVF unit											
	A	B	C	D	E	F	G	H	I	J	K	L
Treatment cycles commenced	17	275	731	99	278	2	116	245	189	2	9	54
Cycles with oocyte retrieval	16	218	658	95	235	2	80	233	173	1	7	54
Cycles with gamete transfer	16	216	652	95	235	2	80	224	169	1	7	54
Clinical pregnancies	3	52	206	28	78	1	24	64	50	1	1	9
Viable pregnancies	3	46	166	20	61	1	19	50	37	1	1	8
Clinical pregnancies per 100 oocyte retrieval cycles	18.8	23.9	31.3	29.5	33.2	50.0	30.0	27.5	28.9	100.0	14.3	16.7
Viable pregnancies per 100 oocyte retrieval cycles	18.8	21.1	25.2	21.1	26.0	50.0	23.8	21.5	21.4	100.0	14.3	14.8

Stage of treatment	IVF unit											
	M	N	O	P	Q	R	S	T	U	V	W	X
Treatment cycles commenced	135	6	55	33	6	1	19	87	4	-	66	-
Cycles with oocyte retrieval	124	6	50	25	6	1	15	70	4	-	59	-
Cycles with gamete transfer	122	6	46	24	6	1	15	65	4	-	57	-
Clinical pregnancies	17	2	14	7	1	-	4	13	1	-	12	-
Viable pregnancies	16	1	10	5	1	-	4	6	1	-	12	-
Clinical pregnancies per 100 oocyte retrieval cycles	13.7	33.3	28.0	28.0	16.7	-	26.7	18.6	25.0	-	20.3	-
Viable pregnancies per 100 oocyte retrieval cycles	12.9	16.7	20.0	20.0	16.7	-	26.7	8.6	25.0	-	20.3	-

Stage of treatment	IVF unit									Total
	Y	Z	AA	AB	AC	AD	AE	AF	AG	
Treatment cycles commenced	1	171	-	-	2	-	6	4	-	2,613
Cycles with oocyte retrieval	1	148	-	-	2	-	6	3	-	2,292
Cycles with gamete transfer	1	142	-	-	2	-	5	3	-	2,250
Clinical pregnancies	-	36	-	-	-	-	3	2	-	629
Viable pregnancies	-	32	-	-	-	-	2	2	-	505
Clinical pregnancies per 100 oocyte retrieval cycles	-	24.3	-	-	-	-	50.0	66.7	-	27.4
Viable pregnancies per 100 oocyte retrieval cycles	-	21.6	-	-	-	-	33.3	66.7	-	22.0

**Table 9. IVF pregnancies after embryo freezing but without ICSI, numbers and pregnancy rates in each IVF unit, 1996**

Stage of treatment	IVF unit											
	A	B	C	D	E	F	G	H	I	J	K	L
Cycles with embryo transfer	821	251	203	396	348	261	309	181	163	224	101	100
Clinical pregnancies	128	35	24	72	50	43	45	31	16	42	13	12
Viable pregnancies	103	28	16	53	36	34	37	25	6	35	11	12
Clinical pregnancies per 100 embryo transfers	15.6	13.9	11.8	18.2	14.4	16.5	14.6	17.1	9.8	18.8	12.9	12.0
Viable pregnancies per 100 embryo transfers	12.5	11.2	7.9	13.4	10.3	13.0	12.0	13.8	3.7	15.6	10.9	12.0

Stage of treatment	IVF unit											
	M	N	O	P	Q	R	S	T	U	V	W	X
Cycles with embryo transfer	150	121	126	132	77	121	84	29	51	43	28	34
Clinical pregnancies	13	24	15	21	4	19	12	2	5	3	1	6
Viable pregnancies	10	19	5	13	2	16	11	1	3	3	1	5
Clinical pregnancies per 100 embryo transfers	8.7	19.8	11.9	15.9	5.2	15.7	14.3	6.9	9.8	7.0	3.6	17.6
Viable pregnancies per 100 embryo transfers	6.7	15.7	4.0	9.8	2.6	13.2	13.1	3.4	5.9	7.0	3.6	14.7

Stage of treatment	IVF unit										Total
	Y	Z	AA	AB	AC	AD	AE	AF	AG		
Cycles with embryo transfer	20	-	33	15	31	12	6	-	33	4,504	
Clinical pregnancies	-	-	7	1	5	1	1	-	4	655	
Viable pregnancies	-	-	7	1	4	1	-	-	4	502	
Clinical pregnancies per 100 embryo transfers	-	-	21.2	6.7	16.1	8.3	16.7	-	12.1	14.5	
Viable pregnancies per 100 embryo transfers	-	-	21.2	6.7	12.9	8.3	-	-	12.1	11.1	

**Table 10. IVF pregnancies after ICSI and embryo freezing, numbers and pregnancy rates in each IVF unit, 1996**

Stage of treatment	IVF unit											
	A	B	C	D	E	F	G	H	I	J	K	L
Cycles with embryo transfer	764	119	90	230	-	196	45	78	77	117	53	153
Clinical pregnancies	114	20	11	31	-	28	6	16	10	13	8	13
Viable pregnancies	89	16	7	27	-	23	6	14	6	11	7	11
Clinical pregnancies per 100 embryo transfers	14.9	16.8	12.2	13.5	-	14.3	13.3	20.5	13.0	11.1	15.1	8.5
Viable pregnancies per 100 embryo transfers	11.6	13.4	7.8	11.7	-	11.7	13.3	17.9	7.8	9.4	13.2	7.2

Stage of treatment	IVF unit											
	M	N	O	P	Q	R	S	T	U	V	W	X
Cycles with embryo transfer	18	49	16	50	14	72	11	8	5	18	14	-
Clinical pregnancies	-	14	1	5	1	4	3	-	-	1	1	-
Viable pregnancies	-	11	-	3	-	3	3	-	-	1	1	-
Clinical pregnancies per 100 embryo transfers	-	28.6	6.3	10.0	7.1	5.6	27.3	-	-	5.6	7.1	-
Viable pregnancies per 100 embryo transfers	-	22.4	-	6.0	-	4.2	27.3	-	-	5.6	7.1	-

Stage of treatment	IVF unit										Total
	Y	Z	AA	AB	AC	AD	AE	AF	AG		
Cycles with embryo transfer	18	-	14	23	14	3	3	-	25	2,297	
Clinical pregnancies	1	-	3	4	3	1	-	-	6	318	
Viable pregnancies	1	-	3	4	3	1	-	-	3	254	
Clinical pregnancies per 100 embryo transfers	5.6	-	21.4	17.4	21.4	33.3	-	-	24.0	13.8	
Viable pregnancies per 100 embryo transfers	5.6	-	21.4	17.4	21.4	33.3	-	-	12.0	11.1	

**Table 11. Treatment related to embryo freezing in each IVF unit, 1996**

Stage of treatment	IVF unit											
	A	B	C	D	E	F	G	H	I	J	K	L
Patients having embryos frozen	840	533	296	649	307	332	295	289	217	249	232	192
Embryos that were frozen	3,917	1,831	1,261	2,633	n.a.	1,386	1,666	1,186	1,264	1,412	1,277	775
Embryos thawed	3,352	1,263	1,161	1,954	n.a.	1,291	1,073	783	670	887	611	633
Patients receiving thawed embryos	943	362	258	673	n.a.	483	262	265	189	207	154	258
Embryos transferred after thawing	2,703	873	742	1,227	n.a.	1,001	762	640	484	671	331	465
Frozen embryos in storage	6,963	4,238	1,308	4,405	n.a.	3,182	2,220	1,900	2,584	2,234	1,445	1,199

Stage of treatment	IVF unit											
	M	N	O	P	Q	R	S	T	U	V	W	X
Patients having embryos frozen	164	149	498	143	85	124	86	50	50	61	75	49
Embryos that were frozen	595	1,138	810	755	557	863	466	171	251	300	282	216
Embryos thawed	418	690	577	589	279	500	305	202	191	262	189	155
Patients receiving thawed embryos	168	179	142	187	93	128	77	40	58	52	42	31
Embryos transferred after thawing	271	500	346	429	224	401	259	78	116	129	102	76
Frozen embryos in storage	888	1,489	852	1,009	683	1,093	598	251	241	517	375	220

Stage of treatment	IVF unit										Total
	Y	Z	AA	AB	AC	AD	AE	AF	AG		
Patients having embryos frozen	50	-	39	21	40	22	31	1	44		6,213
Embryos that were frozen	308	-	239	362	162	91	128	5	243		26,550
Embryos thawed	239	-	197	125	141	59	26	-	205		19,027
Patients receiving thawed embryos	47	-	35	30	46	15	9	-	62		5,495
Embryos transferred after thawing	132	-	137	83	72	38	23	-	115		13,430
Frozen embryos in storage	240	-	396	264	261	117	100	5	385		41,662 *

\* Excludes E

n.a. Not available

**Table 12: Numbers and outcomes of IVF pregnancies by year of conception, 1979-1995**

Outcome of pregnancy	Year of conception							
	1979-93		1994		1995		1979-95	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Spontaneous abortion	2,302	21.1	483	21.4	486	18.7	3,271	20.8
Termination of pregnancy	58	0.5	8	0.4	18	0.7	84	0.5
Ectopic pregnancy	574	5.3	74	3.3	64	2.5	712	4.5
Stillbirth	151	1.4	31	1.4	35	1.3	217	1.4
Live birth *	7,817	71.7	1,659	73.6	1,991	76.8	11,467	72.8
<b>All outcomes</b>	<b>10,902</b>	<b>100.0</b>	<b>2,255</b>	<b>100.0</b>	<b>2,594</b>	<b>100.0</b>	<b>15,751</b>	<b>100.0</b>

\* Multiple pregnancies with both stillbirths and live births are included only in the live birth category

**Table 13: Place of parental residence, IVF pregnancies, 1979-1995**

Place of usual residence	Number			Per cent		
	1979-93	1994	1995	1979-93	1994	1995
New South Wales	3,227	573	654	29.7	25.4	25.2
Victoria	2,831	770	833	26.1	34.2	32.1
Queensland	1,539	189	267	14.2	8.4	10.3
South Australia	1,281	316	291	11.8	14.0	11.2
Western Australia	912	165	242	8.4	7.3	9.3
Tasmania	222	33	37	2.0	1.5	1.4
Australian Capital Territory	96	15	27	0.9	0.7	1.0
Northern Territory	69	30	45	0.6	1.3	1.7
New Zealand	613	152	180	5.7	6.7	6.9
Other countries	59	9	15	0.5	0.4	0.6
Not stated	53	3	3			
<b>All regions</b>	<b>10,902</b>	<b>2,255</b>	<b>2,594</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 14: Maternal ages, IVF pregnancies, 1979-1995**

Age group (years)	Number			Per cent		
	1979-93	1994	1995	1979-93	1994	1995
Less than 20	3	-	1	0.0	-	0.0
20 - 24	240	51	49	2.2	2.3	1.9
25 - 29	2,684	459	473	24.6	20.4	18.3
30 - 34	4,742	971	1,064	43.5	43.1	41.3
35 - 39	2,797	622	766	25.7	27.6	29.7
40 - 44	405	140	209	3.7	6.2	8.1
45 and over	25	11	17	0.2	0.5	0.7
Not stated	6	1	15			
<b>All ages</b>	<b>10,902</b>	<b>2,255</b>	<b>2,594</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 15: Paternal ages, IVF pregnancies, 1979-1995**

Age group (years)	Number					
	1979-93	1994	1995	1979-93	1994	1995
Less than 20	1	-	-	0.0	-	-
20 - 24	109	18	14	1.1	0.8	0.5
25 - 29	1,523	258	253	15.2	11.6	9.9
30 - 34	3,833	782	877	38.2	35.2	34.2
35 - 39	2,920	686	819	29.1	30.8	31.9
40 - 44	1,168	311	382	11.6	14.0	14.9
45 and over	479	169	221	4.8	7.6	8.6
Not stated	869	31	28			
<b>All ages</b>	<b>10,902</b>	<b>2,255</b>	<b>2,594</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 16: Previous pregnancies for pregnant women, IVF pregnancies, 1979-1995**

Number of previous pregnancies	Number				Per cent			
	1979-92	1993	1994	1995	1979-92	1993	1994	1995
None	4,298	736	1,071	1,345	48.0	45.7	48.8	52.9
One	2,472	470	608	684	27.6	29.2	27.7	26.9
Two	1,180	210	259	280	13.2	13.0	11.8	11.0
Three	593	108	147	133	6.6	6.7	6.7	5.2
Four or more	406	88	109	101	4.5	5.5	5.0	4.0
Not stated	246	95	61	51				
<b>All parities</b>	<b>9,195</b>	<b>1,707</b>	<b>2,255</b>	<b>2,594</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 17: Duration of infertility, IVF pregnancies, 1979-1995**

Duration of infertility (years)	Number			Per cent		
	1979-93	1994	1995	1979-93	1994	1995
Less than 2	372	126	171	3.6	5.7	6.8
2 - 3	3,146	841	976	30.6	38.3	39.1
4 - 5	3,000	628	712	29.1	28.6	28.5
6 - 7	1,758	291	303	17.1	13.3	12.1
8 - 9	918	160	137	8.9	7.3	5.5
10 or more	1,099	149	198	10.7	6.8	7.9
Not stated	609	60	97			
<b>All pregnancies</b>	<b>10,902</b>	<b>2,255</b>	<b>2,594</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 18: Outcome of pregnancy by duration of infertility, IVF pregnancies, 1995**

Outcome of pregnancy	Duration of infertility (years)					
	Less than 4		4 - 7		8 or more	
	Number	Per cent	Number	Per cent	Number	Per cent
Spontaneous abortion	209	18.2	175	17.2	73	21.8
Termination of pregnancy	6	0.5	6	0.6	5	1.5
Ectopic pregnancy	30	2.6	20	2.0	11	3.3
Stillbirth	18	1.6	13	1.3	4	1.2
Live birth *	884	77.1	801	78.9	242	72.2
<b>All outcomes</b>	<b>1,147</b>	<b>100.0</b>	<b>1,015</b>	<b>100.0</b>	<b>335</b>	<b>100.0</b>

\* Multiple pregnancies with both stillbirths and live births are included only in the live birth category

Note: The duration of infertility was not stated for 97 pregnancies in 1995

**Table 19: Causes of infertility, selected IVF cohorts, 1979-1995**

Causes of infertility	Number			Per cent		
	1979-93	1994	1995	1979-93	1994	1995
Tubal	4,340	524	419	39.9	23.3	16.2
Male factor	1,532	706	777	14.1	31.3	30.0
Endometriosis	631	115	100	5.8	5.1	3.9
Other stated causes	549	125	174	5.0	5.5	6.7
Multiple causes	2,738	567	903	25.1	25.2	34.9
Unexplained infertility	1,100	216	217	10.1	9.6	8.4
Not stated	12	2	4			
<b>All causes</b>	<b>10,902</b>	<b>2,255</b>	<b>2,594</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 20: Outcome of IVF pregnancies by causes of infertility, 1995**

Outcome of pregnancy	Causes of infertility					
	Tubal	Male	Endometriosis	Multiple	Unexplained	All causes*
	<b>Number</b>					
Spontaneous abortion	69	140	16	166	47	486
Termination of pregnancy	3	3	2	10	-	18
Ectopic pregnancy	16	13	2	22	6	64
Stillbirth	7	10	-	15	2	35
Live birth	324	611	80	690	162	1,991
<b>All outcomes</b>	<b>419</b>	<b>777</b>	<b>100</b>	<b>903</b>	<b>217</b>	<b>2,594</b>
	<b>Per cent</b>					
Spontaneous abortion	16.5	18.0	16.0	18.4	21.7	18.7
Termination of pregnancy	0.7	0.4	2.0	1.1	-	0.7
Ectopic pregnancy	3.8	1.7	2.0	2.4	2.8	2.5
Stillbirth	1.7	1.3	-	1.7	0.9	1.3
Live birth	77.3	78.6	80.0	76.4	74.7	76.8
<b>All outcomes</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\* Includes 178 pregnancies with 'other' or 'not stated' causes of infertility



**Table 21: Drugs used to stimulate ovulation, IVF pregnancies, 1979-1995**

Drugs	Number			Per cent		
	1979-93	1994	1995	1979-93	1994	1995
Natural cycles	44	9	114	0.4	0.4	4.4
Clomiphene and hMG or FSH	5,637	161	126	55.6	7.6	4.9
hMG or FSH	184	13	98	1.8	0.6	3.8
GnRH analogues and hMG or FSH	4,215	1,940	2,232	41.6	91.4	86.5
Other	50	-	9	0.5	-	0.3
Not stated	772	132	15			
<b>All drugs</b>	<b>10,902</b>	<b>2,255</b>	<b>2,594</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 22: IVF treatment cycle in which conception occurred, 1979-1995**

Treatment cycle	Number			Per cent		
	1979-93	1994	1995	1979-93	1994	1995
1	4,446	927	1,113	43.3	43.4	44.2
2	2,507	501	626	24.4	23.4	24.9
3	1,432	302	333	13.9	14.1	13.2
4	784	182	168	7.6	8.5	6.7
5 or more	1,102	226	276	10.7	10.6	11.0
Not stated	631	117	78			
<b>All cycles</b>	<b>10,902</b>	<b>2,255</b>	<b>2,594</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 23: Number of oocytes collected by laparoscopy or ultrasound guidance, IVF pregnancies, 1979-1995**

Number of oocytes collected	1979-93		1994		1995	
	Number	Per cent	Number	Per cent	Number	Per cent
1-2	700	7.0	65	3.1	94	3.9
3-4	1,842	18.4	165	7.9	182	7.5
5-6	2,140	21.4	288	13.8	264	10.8
7-8	2,173	21.7	310	14.8	334	13.7
9-10	899	9.0	291	13.9	324	13.3
11-12	675	6.7	249	11.9	310	12.7
13-14	498	5.0	197	9.4	234	9.6
15 or more	1,083	10.8	523	25.0	693	28.5
Not stated	892		167		159	
<b>All pregnancies</b>	<b>10,902</b>	<b>100.0</b>	<b>2,255</b>	<b>100.0</b>	<b>2,594</b>	<b>100.0</b>
Mean number of oocytes	8.9*		11.4		11.8	

\* Data include 1987-1993

**Table 24: Number of embryos transferred, IVF pregnancies, 1979-1995**

Number of embryos transferred	Number			Per cent		
	1979-93	1994	1995	1979-93	1994	1995
1	838	176	209	7.8	7.9	8.3
2	3,218	1,053	1,361	29.9	47.1	53.8
3	4,861	977	917	45.1	43.7	36.3
4	1,699	25	37	15.8	1.1	1.5
5 or more	160	4	4	1.5	0.2	0.2
Not stated	126	20	66			
<b>All pregnancies</b>	<b>10,902</b>	<b>2,255</b>	<b>2,594</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Mean number of embryos	2.7	2.4	2.3			

**Table 25: Outcome of IVF pregnancies by number of embryos transferred, 1995**

Outcome of pregnancy	Number of embryos transferred					All** pregnancies
	1	2	3	4	5+	
	<b>Number</b>					
Spontaneous abortion	50	242	173	8	2	486
Termination of pregnancy	4	6	7	-	-	18
Ectopic pregnancy	1	29	33	-	-	64
Stillbirth	-	20	14	-	-	35
Live birth	154	1,064	690	29	2	1,991
<b>All outcomes</b>	<b>209</b>	<b>1,361</b>	<b>917</b>	<b>37</b>	<b>4</b>	<b>2,594</b>
	<b>Per cent</b>					
Spontaneous abortion	23.9	17.8	18.9	21.6	50.0	18.7
Termination of pregnancy	1.9	0.4	0.8	-	-	0.7
Ectopic pregnancy	0.5	2.1	3.6	-	-	2.5
Stillbirth	-	1.5	1.5	-	-	1.3
Live birth *	73.7	78.2	75.2	78.4	50.0	76.8
<b>All outcomes</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\* Multiple pregnancies with both stillbirths and live births are included only in the live birth category

\*\* Includes 66 pregnancies in which the number of embryos transferred was not stated

**Table 26: Number of IVF pregnancies following donor oocytes, sperm or embryos, and frozen embryos or oocytes, 1979-1995**

Type of pregnancy	1979-92	1993	1994	1995	1979-95
Donor oocytes	227	69	63	87	446
Donor sperm	840	141	141	133	1,255
Donor embryos	11	9	9	14	43
Frozen embryos	1,477	603	787	901	3,768
Frozen oocytes	4	-	-	2	6

**Table 27: Outcome of pregnancy after use of donor gametes, donor or frozen embryos, IVF pregnancies, 1979-1995**

Outcome of pregnancy	Donor sperm		Donor oocytes		Donor embryos		Frozen embryos	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Spontaneous abortion	227	18.1	105	23.5	11	25.6	697	18.5
Termination of pregnancy	5	0.4	5	1.1	-	-	29	0.8
Ectopic pregnancy	43	3.4	9	2.0	2	4.7	113	3.0
Stillbirth	23	1.8	2	0.4	-	-	39	1.0
Live birth *	957	76.3	325	72.9	30	69.8	2890	76.7
<b>All outcomes</b>	<b>1,255</b>	<b>100.0</b>	<b>446</b>	<b>100.0</b>	<b>43</b>	<b>100.0</b>	<b>3,768</b>	<b>100.0</b>

**Table 28: Number and outcome of pregnancies after microinsemination, 1990-1995**

Outcome of pregnancy	Year of conception							
	1990-93		1994		1995		1990-95	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Spontaneous abortion	51	21.0	105	19.1	172	18.4	328	19.0
Termination of pregnancy	2	0.8	3	0.5	8	0.9	13	0.8
Ectopic pregnancy	6	2.5	12	2.2	13	1.4	31	1.8
Stillbirth	2	0.8	8	1.5	12	1.3	22	1.3
Live birth *	182	74.9	423	76.8	728	78.0	1,333	77.2
<b>All outcomes</b>	<b>243</b>	<b>100.0</b>	<b>551</b>	<b>100.0</b>	<b>933</b>	<b>100.0</b>	<b>1,727</b>	<b>100.0</b>

\* Multiple pregnancies with both stillbirths and live births are included only in the live birth category

**Table 29: Drugs used in luteal phase after embryo transfer, IVF pregnancies, 1979-1995**

Drugs	Number			Per cent		
	1979-93	1994	1995	1979-93	1994	1995
Proluton	247	6	402	2.3	0.3	15.5
Human chorionic gonadotrophin (hCG)	5,106	1,132	1,237	47.6	50.5	47.7
Human chorionic gonadotrophin / Proluton	484	61	181	4.5	2.7	7.0
Progestagen	1,421	573	225	13.3	25.6	8.7
Other drugs	83	1	3	0.8	0.0	0.1
None	3,379	468	546	31.5	20.9	21.0
Not stated	182	14	-			
<b>All pregnancies</b>	<b>10,902</b>	<b>2,255</b>	<b>2,594</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 30: Outcome of pregnancy in maternal age groups, IVF pregnancies, 1979-1995**

Outcome of pregnancy	Maternal age (years)					All ages*
	Less than 25	25 - 29	30 - 34	35 - 39	40 and over	
	<b>Number</b>					
Spontaneous abortion	53	656	1,241	1,019	292	3,271
Termination of pregnancy	1	16	31	21	15	84
Ectopic pregnancy	19	179	309	173	32	712
Stillbirth	4	46	93	65	9	217
Live birth	267	2,719	5,103	2,907	459	11,467
<b>All outcomes</b>	<b>344</b>	<b>3,616</b>	<b>6,777</b>	<b>4,185</b>	<b>807</b>	<b>15,751</b>
	<b>Per cent</b>					
Spontaneous abortion	15.4	18.1	18.3	24.3	36.2	20.8
Termination of pregnancy	0.3	0.4	0.5	0.5	1.9	0.5
Ectopic pregnancy	5.5	5.0	4.6	4.1	4.0	4.5
Stillbirth	1.2	1.3	1.4	1.6	1.1	1.4
Live birth	77.6	75.2	75.3	69.5	56.9	72.8
<b>All outcomes</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\* Includes 22 pregnancies in which maternal age was not stated

**Table 31: Spontaneous abortions, IVF pregnancies, 1979-1995**

Outcome of pregnancy	1979-92	1993	1994	1995	1979-95
Spontaneous abortion	1,962	340	483	486	3,271
Stillbirth	137	14	31	35	217
Live birth	6,543	1,274	1,659	1,991	11,467
Total abortions and births	8,642	1,628	2,173	2,512	14,955
Spontaneous abortion rate (%)	22.7	20.9	22.2	19.3	21.9

**Table 32: Incidence of spontaneous abortions in maternal age groups, IVF pregnancies, 1979-1995**

Maternal age (years)	Number of IVF pregnancies *	Spontaneous abortions	
		Number	Per cent
Less than 25	324	53	16.4
25 - 29	3,421	656	19.2
30 - 34	6,437	1,241	19.3
35 - 39	3,991	1,019	25.5
40 - 44	709	269	37.9
45 and over	51	23	45.1
Not stated	22	10	
<b>All ages</b>	<b>14,955</b>	<b>3,271</b>	<b>21.9</b>

\* Spontaneous abortions and pregnancies of at least 20 weeks' gestation

**Table 33: Ectopic pregnancies after IVF, 1979-1995**

Outcome of pregnancy	1979-92	1993	1994	1995	1979-95
Ectopic pregnancies	510	64	74	64	712
Clinical pregnancies	9,195	1,707	2,255	2,594	15,751
% ectopic pregnancies	5.5	3.7	3.3	2.5	4.5
Total abortions and births	8,685	1,643	2,181	2,530	15,039
Ectopic pregnancy ratio *	1:17.0	1:25.7	1:29.5	1:39.5	1:21.1

\* Ratio of ectopic pregnancies: total abortions and births

**Table 34: Heterotopic pregnancies after IVF, 1979-1995**

Type of heterotopic pregnancy	Year						
	1979-89	1990	1991	1992	1993	1994	1995
	<b>Number</b>						
Abortion	33	7	7	5	3	2	5
Birth	15	2	3	3	5	4	5
<b>All heterotopic pregnancies</b>	<b>48</b>	<b>9</b>	<b>10</b>	<b>8</b>	<b>8</b>	<b>6</b>	<b>10</b>
All pregnancies	5,131	1,238	1,313	1,513	1,707	2,255	2,594
	<b>Per cent</b>						
Abortion	0.6	0.6	0.5	0.3	0.2	0.1	0.2
Birth	0.3	0.2	0.2	0.2	0.3	0.2	0.2
<b>All heterotopic pregnancies</b>	<b>0.9</b>	<b>0.7</b>	<b>0.8</b>	<b>0.5</b>	<b>0.5</b>	<b>0.3</b>	<b>0.4</b>

**Table 35: Reported complications of pregnancy, IVF pregnancies, 1990-1995**

Pregnancy complications	Number			Per cent		
	1990-93	1994	1995	1990-93	1994	1995
None	2,822	1,162	1,820	65.4	63.7	66.1
Threatened abortion	287	78	106	6.5	6.8	4.4
Antepartum haemorrhage	67	29	66	1.6	1.3	1.7
Pregnancy-induced hypertension	260	129	146	5.0	8.4	7.3
Placenta praevia	60	13	31	1.4	1.3	0.7
Other complications	851	347	339	20.0	18.5	19.7
Not stated	1,424	497	86			
<b>All pregnancies</b>	<b>5,771</b>	<b>2,255</b>	<b>2,594</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 36: Duration of singleton and multiple IVF pregnancies of at least 20 weeks' gestation, 1995**

Gestational age (weeks)	Singleton		Twin		Triplet		All pregnancies	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
20 - 23	14	0.9	9	2.6	2	6.3	25	1.3
24 - 27	16	1.0	21	6.0	2	6.3	39	2.0
28 - 31	26	1.6	30	8.5	11	34.4	67	3.4
32 - 36	155	9.7	172	48.9	17	53.1	344	17.4
37 - 41	1,367	85.7	117	33.2	-	-	1,484	74.9
42 or more	18	1.1	3	0.9	-	-	21	1.1
20 - 36	211	13.2	232	65.9	32	100.0	475	24.0
Not stated	35		7		2		44	
<b>All gestational ages</b>	<b>1,631</b>	<b>100.0</b>	<b>359</b>	<b>100.0</b>	<b>34</b>	<b>100.0</b>	<b>2,024</b>	<b>100.0</b>

**Table 37: Duration of singleton and multiple IVF pregnancies of at least 20 weeks' gestation after microinsemination, 1990-1995**

Gestational age (weeks)	Singleton		Twin		Triplet		All pregnancies*	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
20 - 23	9	0.8	5	2.2	2	8.7	16	1.2
24 - 27	7	0.6	16	7.0	1	4.3	24	1.8
28 - 31	15	1.4	14	6.2	5	21.7	35	2.6
32 - 36	101	9.2	97	42.7	15	65.2	213	15.8
37 - 41	944	86.4	93	41.0	-	-	1,037	77.2
42 or more	17	1.6	2	0.9	-	-	19	1.4
20 - 36	132	12.1	132	58.1	23	100.0	288	21.4
Not stated	11		-		-		11	
<b>All gestational ages</b>	<b>1,104</b>	<b>100.0</b>	<b>227</b>	<b>100.0</b>	<b>23</b>	<b>100.0</b>	<b>1,355</b>	<b>100.0</b>

\* Includes 1 quadruplet pregnancy

**Table 38: Duration of pregnancy of singleton IVF births after use of donor sperm, donor oocytes or frozen embryos, 1995**

Gestational age (weeks)	Donor sperm		Donor oocytes		Frozen embryos	
	Number	Per cent	Number	Per cent	Number	Per cent
20 - 27	2	2.2	2	3.4	9	1.5
28 - 31	2	2.2	1	1.7	10	1.7
32 - 36	7	7.6	6	10.3	44	7.4
37 - 41	81	88.0	49	84.5	524	88.1
42 or more	-	-	-	-	8	1.3
<b>All gestational ages</b>	<b>92</b>	<b>100.0</b>	<b>58</b>	<b>100.0</b>	<b>595</b>	<b>100.0</b>

**Table 39: Maternal age and duration of singleton IVF pregnancies of at least 20 weeks' gestation, 1995**

Gestational age (weeks)	Maternal age (years)					All ages
	Less than 25	25 - 29	30 - 34	35 - 39	40 and over	
	<b>Number</b>					
20 - 27	-	7	9	9	5	30
28 - 31	1	2	12	7	3	26
32 - 36	5	24	55	56	13	155
37 or more	21	266	587	401	105	1,385
Not stated	2	3	18	9	3	35
<b>All gestational ages</b>	<b>29</b>	<b>302</b>	<b>681</b>	<b>482</b>	<b>129</b>	<b>1,631</b>
20 - 36	6	33	76	72	21	211
	<b>Per cent</b>					
20 - 27	-	2.3	1.4	1.9	4.0	1.9
28 - 31	3.7	0.7	1.8	1.5	2.4	1.6
32 - 36	18.5	8.0	8.3	11.8	10.3	9.7
37 or more	77.8	89.0	88.5	84.8	83.3	86.8
<b>All gestational ages</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
20 - 36	22.2	11.0	11.5	15.2	16.7	13.2

**Table 40: Causes of infertility and duration of singleton IVF pregnancies of at least 20 weeks' gestation, 1995**

Gestational age (weeks)	Causes of infertility					All causes*
	Tubal	Male	Endometriosis	Multiple	Unexplained	
	<b>Number</b>					
20 - 27	9	8	-	8	3	30
28 - 31	3	6	2	10	2	26
32 - 36	29	46	4	50	10	155
37 or more	223	431	53	482	114	1,385
Not stated	6	7	1	14	3	35
<b>All gestational ages</b>	<b>270</b>	<b>498</b>	<b>60</b>	<b>564</b>	<b>132</b>	<b>1,631</b>
20 - 36	41	60	6	68	15	211
	<b>Per cent</b>					
20 - 27	3.4	1.6	-	1.5	2.3	1.9
28 - 31	1.1	1.2	3.4	1.8	1.6	1.6
32 - 36	11.0	9.4	6.8	9.1	7.8	9.7
37 - or more	84.5	87.8	89.8	87.6	88.4	86.8
<b>All gestational ages</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
20 - 36	15.5	12.2	10.2	12.4	11.6	13.2

\* Includes 107 pregnancies with 'other' or 'not stated' causes of infertility



**Table 41: Plurality of IVF pregnancies of at least 20 weeks' gestation, 1979-1995**

Plurality	Number			Per cent		
	1979-93	1994	1995	1979-93	1994	1995
Singletons	6,365	1,406	1,631	79.9	83.2	80.6
Twins	1,394	256	359	17.5	15.1	17.7
Triplets	199	27	34	2.5	1.6	1.7
Quadruplets	9	1	-	0.1	0.1	-
Quintuplets	1	-	-	0.0	-	-
<b>All pregnancies</b>	<b>7,968</b>	<b>1,690</b>	<b>2,024</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 42: Plurality of IVF pregnancies of at least 20 weeks' gestation and number of embryos transferred, 1995**

Number of embryos transferred	Plurality							
	Singleton		Twin		Triplet		All pregnancies	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	151	98.1	3	1.9	-	-	154	100.0
2	885	81.8	194	17.9	3	0.3	1,082	100.0
3	526	74.7	150	21.3	28	4.0	704	100.0
4	20	69.0	7	24.1	2	6.9	29	100.0
5 or more	2	100.0	-	-	-	-	2	100.0
Not stated	47		5		1		53	
<b>All pregnancies</b>	<b>1,631</b>	<b>80.6</b>	<b>359</b>	<b>17.7</b>	<b>34</b>	<b>1.7</b>	<b>2,024</b>	<b>100.0</b>

**Table 43: Multiple pregnancies, IVF & GIFT pregnancies, State and Territory, 1993-1995**

Plurality	IVF unit							Australia	New Zealand
	NSW	Vic.	Qld	WA	SA/NT	ACT/Tas			
Singleton pregnancies	1,527	1,730	872	382	671	115	5,297	292	
Twin pregnancies	313	355	234	105	139	25	1,171	68	
Triplet pregnancies	24	31	46	15	12	2	130	9	
Higher multiple pregnancies	1	1	3	1	1	-	7	-	
All pregnancies	1,865	2,117	1,155	503	823	142	6,605	369	
Proportion of twins per 100 viable pregnancies	16.8	16.8	20.3	20.9	16.9	17.6	17.7	18.4	
Proportion of triplets/higher multiples per 100 pregnancies	1.3	1.5	4.2	3.2	1.6	1.4	2.1	2.4	

**Table 44: Multiple pregnancies in each IVF unit, IVF & GIFT pregnancies, 1993-1995**

Plurality	IVF unit												
	A	B	C	D	E	F	G	H	I	J	K	L	M
Singleton pregnancies	910	745	648	582	242	289	247	291	204	128	125	134	105
Twin pregnancies	141	188	182	124	66	54	72	62	29	21	26	34	25
Triplet pregnancies	1	28	40	11	8	3	8	7	-	-	5	1	4
Higher multiple pregnancies	-	1	3	1	1	-	1	-	-	-	-	-	-
All pregnancies	1,052	962	873	718	317	346	328	360	233	149	156	169	134
Proportion of twins per 100 viable pregnancies	13.4	19.5	20.8	17.3	20.8	15.6	22.0	17.2	12.4	14.1	16.7	20.1	18.7
Proportion of triplets/higher multiples per 100 pregnancies	0.1	3.0	4.9	1.7	2.8	0.9	2.7	1.9	-	-	3.2	0.6	3.0

Plurality	IVF unit												
	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Singleton pregnancies	118	157	57	77	64	51	67	71	90	-	51	18	46
Twin pregnancies	27	37	4	18	10	15	15	10	15	-	16	6	16
Triplet pregnancies	6	6	-	1	2	-	-	3	1	-	-	1	2
Higher multiple pregnancies	-	-	-	-	-	-	-	-	-	-	-	-	-
All pregnancies	151	200	61	96	76	66	82	84	106	-	67	25	64
Proportion of twins per 100 viable pregnancies	17.9	18.5	6.6	18.8	13.2	22.7	18.3	11.9	14.2	-	23.9	24.0	25.0
Proportion of triplets/higher multiples per 100 pregnancies	4.0	3.0	-	1.0	2.6	-	-	3.6	0.9	-	-	4.0	3.1

Plurality	IVF unit							Total
	AA	AB	AC	AD	AE	AF	AG	
Singleton pregnancies	24	-	36	24	-	-	-	5,601
Twin pregnancies	10	-	12	8	-	-	-	1,243
Triplet pregnancies	-	-	-	1	-	-	-	139
Higher multiple pregnancies	-	-	-	-	-	-	-	7
All pregnancies	34	-	48	33	-	-	-	6,990
Proportion of twins per 100 viable pregnancies	29.4	-	25.0	24.2	-	-	-	17.8
Proportion of triplets/higher multiples per 100 pregnancies	-	-	-	3.0	-	-	-	2.1

**Table 45: Method of delivery for singleton and multiple IVF pregnancies of at least 20 weeks' gestation, 1995**

Plurality	Method of delivery				
	Vaginal		Caesarean section		All methods*
	Number	Per cent	Number	Per cent	Number
Singleton	1,034	64.5	569	35.5	1,631
Twin	146	41.5	206	58.5	359
Triplet	3	8.8	31	91.2	34
Quadruplet	-	-	-	-	-
<b>All pregnancies</b>	<b>1,183</b>	<b>59.5</b>	<b>806</b>	<b>40.5</b>	<b>2,024</b>

\* Includes 35 pregnancies in which the method of delivery was not stated

**Table 46: Sex of infants in singleton and multiple IVF births of at least 20 weeks' gestation, selected conception cohorts, 1979-1995**

Plurality	Male			Female			Sex ratio (M:F)		
	1979-93	1994	1995	1979-93	1994	1995	1979-93	1994	1995
Singletons	3,286	727	815	3,042	674	812	108.0	107.9	100.4
Twins	1,448	263	354	1,324	248	360	109.4	106.0	98.3
Triplets	304	37	47	287	44	54	105.9	84.1	87.0
Quadruplets	21	2	-	15	2	-	140.0	100.0	-
Quintuplets	1	-	-	4	-	-	25.0	-	-
<b>All births</b>	<b>5,060</b>	<b>1,029</b>	<b>1,216</b>	<b>4,672</b>	<b>968</b>	<b>1,226</b>	<b>108.3</b>	<b>106.3</b>	<b>99.2</b>

Note: Infant's sex was not stated or indeterminate for 74 births

**Table 47: Birthweight of IVF live births and stillbirths, 1995**

Birthweight (g)	Live births		Stillbirths		All births	
	Number	Per cent	Number	Per cent	Number	Per cent
Less than 500	10	0.4	20	47.6	30	1.2
500 - 999	54	2.3	13	31.0	67	2.8
1000 - 1499	79	3.3	2	4.8	81	3.3
1500 - 1999	178	7.5	4	9.5	182	7.5
2000 - 2499	299	12.6	-	0.0	300	12.4
2500 - 2999	498	21.0	1	2.4	505	20.8
3000 - 3499	662	28.0	1	2.4	666	27.5
3500 - 3999	422	17.8	1	2.4	426	17.6
4000 and over	165	7.0	-	0.0	168	6.9
Not stated	14		10		26	
<b>All birthweights</b>	<b>2,381</b>	<b>100.0</b>	<b>52</b>	<b>100.0</b>	<b>2,451</b>	<b>100.0</b>
Mean birthweight (g)	2,924		818		2,889	

**Table 48: Birthweight of infants in singleton and multiple IVF births of at least 20 weeks' gestation, 1995**

Birthweight (g)	Singleton		Twin		Triplet		All births	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Less than 500	13	0.8	10	1.4	7	6.9	30	1.2
500 - 999	15	0.9	43	6.1	9	8.8	67	2.8
1000 - 1499	20	1.2	37	5.3	24	23.5	81	3.3
1500 - 1999	28	1.7	118	16.8	36	35.3	182	7.5
2000 - 2499	87	5.4	192	27.3	21	20.6	300	12.4
2500 - 2999	290	17.9	211	30.0	4	3.9	505	20.8
3000 - 3499	580	35.8	85	12.1	1	1.0	666	27.5
3500 - 3999	418	25.8	8	1.1	-	-	426	17.6
4000 and over	168	10.4	-	-	-	-	168	6.9
Less than 2500	163	10.1	400	56.8	97	95.1	660	27.2
Not stated	12		14		-		26	
<b>All birthweights</b>	<b>1,631</b>	<b>100.0</b>	<b>718</b>	<b>100.0</b>	<b>102</b>	<b>100.0</b>	<b>2,451</b>	<b>100.0</b>
Mean birthweight (g)	3,245		2,262		1,582		2,889	

**Table 49: Birthweight of infants in singleton and multiple births of at least 20 weeks' gestation after microinsemination, 1990-1995**

Birthweight (g)	Singleton		Twin		Triplet		All births*	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Less than 500	5	0.5	5	1.1	6	8.7	16	1.0
500 - 999	10	0.9	32	7.2	5	7.2	47	2.9
1000 - 1499	8	0.7	23	5.2	14	20.3	49	3.0
1500 - 1999	22	2.0	56	12.6	23	33.3	101	6.3
2000 - 2499	70	6.4	130	29.1	18	26.1	218	13.5
2500 - 2999	199	18.2	141	31.6	2	2.9	342	21.2
3000 - 3499	391	35.7	56	12.6	1	1.4	448	27.7
3500 - 3999	285	26.0	3	0.7	-	-	288	17.8
4000 and over	106	9.7	-	-	-	-	106	6.6
Less than 2500	115	10.5	246	55.2	66	95.7	431	26.7
Not stated	7		8		-		15	
<b>All birthweights</b>	<b>1,103</b>	<b>100.0</b>	<b>454</b>	<b>100.0</b>	<b>69</b>	<b>100.0</b>	<b>1,630</b>	<b>100.0</b>
Mean birthweight (g)	3,244		2,281		1,637		2,904	

\* Includes 4 quadruplet births

**Table 50: Birthweight of infants in singleton IVF pregnancies after use of donor sperm, donor oocytes or frozen embryos, 1979-1995**

Birthweight (g)	Donor sperm		Donor oocytes		Frozen embryos	
	Number	Per cent	Number	Per cent	Number	Per cent
Less than 500	5	0.6	1	0.4	9	0.4
500 - 999	9	1.2	5	1.8	28	1.1
1000 - 1499	11	1.4	7	2.5	20	0.8
1500 - 1999	12	1.6	7	2.5	43	1.7
2000 - 2499	44	5.7	20	7.0	100	4.0
2500 or more	689	89.5	244	85.9	2,309	92.0
Not stated	9		3		30	
Less than 2500	81	10.5	40	14.1	200	8.0
<b>All birthweights</b>	<b>779</b>	<b>100.0</b>	<b>287</b>	<b>100.0</b>	<b>2,539</b>	<b>100.0</b>
Mean birthweight (g)	3,234		3,216		3,332	

**Table 51: Outcome of infants in singleton and multiple IVF births of at least 20 weeks' gestation, 1995**

Outcome	Singleton	Twin	Triplet	Quadruplet	All births*
Live births	1,604	697	95	-	2,396
Stillbirths	24	21	7	-	52
<b>Total births</b>	<b>1,631</b>	<b>718</b>	<b>102</b>	<b>-</b>	<b>2,451</b>
Neonatal deaths	8	14	4	-	26
Perinatal deaths	32	35	11	-	78
Stillbirth rate per 1,000 total births	14.7	29.2	68.6	-	21.2
Neonatal death rate per 1,000 live births	5.0	20.1	42.1	-	10.9
Perinatal mortality rate per 1,000 total births	19.6	48.7	107.8	-	31.8

\* Includes 3 births for which birth status was unknown

**Table 52: Major congenital malformations in singleton and multiple IVF births of at least 20 weeks' gestation, 1979-1995**

Outcome	Singleton	Multiple	All births*
Total births	9,453	4,847	14,300
Congenital malformations			
- number	263	98	361
- rate (per cent)	2.8	2.0	2.5

\* Includes 44 abortions for fetal abnormality at gestational ages of at least 16 weeks

**Table 53: Numbers and outcomes of completed GIFT pregnancies by year of conception, 1985-1995**

Outcome of pregnancy	Year of conception							
	1985-93		1994		1995		1985-95	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Spontaneous abortion	1,285	21.0	178	20.5	116	17.9	1,579	20.7
Termination of pregnancy	34	0.6	3	0.3	7	1.1	44	0.6
Ectopic pregnancy	221	3.6	21	2.4	14	2.2	256	3.4
Stillbirth	64	1.0	12	1.4	9	1.4	85	1.1
Live birth *	4,505	73.7	655	75.4	503	77.5	5,663	74.2
<b>All outcomes</b>	<b>6,109</b>	<b>100.0</b>	<b>869</b>	<b>100.0</b>	<b>649</b>	<b>100.0</b>	<b>7,627</b>	<b>100.0</b>

\* Multiple pregnancies with both stillbirths and live births are included only in the live birth category

**Table 54: Place of parental residence, GIFT pregnancies, 1985-1995**

Place of usual residence	Number			Per cent		
	1985-93	1994	1995	1985-93	1994	1995
	New South Wales	1,964	269	230	32.2	31.0
Victoria	1,261	196	118	20.7	22.6	18.2
Queensland	1,646	305	227	27.0	35.1	35.0
South Australia	438	16	30	7.2	1.8	4.6
Western Australia	581	62	30	9.5	7.1	4.6
Tasmania	25	4	1	0.4	0.5	0.2
Australian Capital Territory	42	5	4	0.7	0.6	0.6
Northern Territory	16	1	1	0.3	0.1	0.2
New Zealand	101	8	6	1.7	0.9	0.9
Other countries	24	3	2	0.4	0.3	0.3
Not stated	11	-	-			
<b>All regions</b>	<b>6,109</b>	<b>869</b>	<b>649</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 55: Maternal ages, GIFT pregnancies, 1985-1995**

Age group (years)	Number			Per cent		
	1985-93	1994	1995	1985-93	1994	1995
Less than 20	-	-	-	-	-	-
20 - 24	160	25	12	2.6	2.9	1.9
25 - 29	1,509	207	117	24.7	23.8	18.1
30 - 34	2,641	370	291	43.2	42.6	44.9
35 - 39	1,527	204	163	25.0	23.5	25.2
40 - 44	259	57	63	4.2	6.6	9.7
45 and over	12	5	2	0.2	0.6	0.3
Not stated	1	1	1			
<b>All ages</b>	<b>6,109</b>	<b>869</b>	<b>649</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 56: Paternal ages, GIFT pregnancies, 1985-1995**

Age group (years)	Number			Per cent		
	1985-93	1994	1995	1985-93	1994	1995
Less than 20	2	-	-	0.0	-	-
20 - 24	33	3	1	0.6	0.3	0.2
25 - 29	823	133	75	14.2	15.4	11.6
30 - 34	2,234	321	241	38.6	37.2	37.3
35 - 39	1,673	230	182	28.9	26.7	28.2
40 - 44	689	120	92	11.9	13.9	14.2
45 and over	337	56	55	5.8	6.5	8.5
Not stated	318	6	3			
<b>All ages</b>	<b>6,109</b>	<b>869</b>	<b>649</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 57: Previous pregnancies for pregnant women, GIFT pregnancies, 1985-1995**

Number of previous pregnancies	Number				Per cent			
	1985-92	1993	1994	1995	1985-92	1993	1994	1995
None	2,738	506	461	314	54.8	51.8	54.2	49.5
One	1,533	307	238	201	30.7	31.4	28.0	31.7
Two	468	112	92	71	9.4	11.5	10.8	11.2
Three	162	35	40	29	3.2	3.6	4.7	4.6
Four or more	92	17	20	19	1.8	1.7	2.4	3.0
Not stated	94	45	18	15				
<b>All parities</b>	<b>5,087</b>	<b>1,022</b>	<b>869</b>	<b>649</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 58: Duration of infertility, GIFT pregnancies, 1985-1995**

Duration of infertility (years)	Number			Per cent		
	1985-93	1994	1995	1985-93	1994	1995
Less than 2	392	57	57	6.7	6.7	8.9
2 - 3	2,323	405	293	39.8	47.9	45.9
4 - 5	1,522	234	169	26.1	27.7	26.5
6 - 7	786	87	58	13.5	10.3	9.1
8 - 9	423	31	31	7.3	3.7	4.9
10 or more	386	32	30	6.6	3.8	4.7
Not stated	277	23	11			
<b>All pregnancies</b>	<b>6,109</b>	<b>869</b>	<b>649</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 59: Outcome of pregnancy by duration of infertility, GIFT pregnancies, 1995**

Outcome of pregnancy	Duration of infertility (years)					
	Less than 4		4 - 7		8 or more	
	Number	Per cent	Number	Per cent	Number	Per cent
Spontaneous abortion	71	20.3	30	13.2	12	19.7
Termination of pregnancy	5	1.4	2	0.9	-	-
Ectopic pregnancy	6	1.7	7	3.1	1	1.6
Stillbirth	2	0.6	6	2.6	1	1.6
Live birth *	266	76.0	182	80.2	47	77.0
<b>All outcomes</b>	<b>350</b>	<b>100.0</b>	<b>227</b>	<b>100.0</b>	<b>61</b>	<b>100.0</b>

\* Multiple pregnancies with both stillbirths and live births are included only in the live birth category

Note: The duration of infertility was not stated for 11 pregnancies in 1995



**Table 60: Causes of infertility, selected GIFT cohorts, 1985-1995**

Causes of infertility	Number			Per cent		
	1985-93	1994	1995	1985-93	1994	1995
Tubal	322	32	12	5.3	3.7	1.8
Male factor	1,282	188	85	21.0	21.7	13.1
Endometriosis	884	132	77	14.5	15.2	11.9
Other stated causes	475	88	68	7.8	10.1	10.5
Multiple causes	1,357	190	204	22.2	21.9	31.4
Unexplained infertility	1,779	238	203	29.2	27.4	31.3
Not stated	10	1	-			
<b>All causes</b>	<b>6,109</b>	<b>869</b>	<b>649</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 61: Outcome of GIFT pregnancies by causes of infertility, 1995**

Outcome of pregnancy	Causes of infertility					
	Tubal	Male	Endometriosis	Multiple	Unexplained	All causes*
	<b>Number</b>					
Spontaneous abortion	2	7	8	43	40	116
Termination of pregnancy	-	1	1	1	3	7
Ectopic pregnancy	2	-	2	4	4	14
Stillbirth	1	-	-	2	4	9
Live birth	7	77	66	154	152	503
<b>All outcomes</b>	<b>12</b>	<b>85</b>	<b>77</b>	<b>204</b>	<b>203</b>	<b>649</b>
	<b>Per cent</b>					
Spontaneous abortion	16.7	8.2	10.4	21.1	19.7	17.9
Termination of pregnancy	-	1.2	1.3	0.5	1.5	1.1
Ectopic pregnancy	16.7	-	2.6	2.0	2.0	2.2
Stillbirth	8.3	-	-	1.0	2.0	1.4
Live birth	58.3	90.6	85.7	75.5	74.9	77.5
<b>All outcomes</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\* Includes 68 pregnancies with 'other' or 'not stated' causes of infertility

**Table 62: Drugs used to stimulate ovulation, GIFT pregnancies, 1985-1995**

Drugs	Number			Per cent		
	1985-93	1994	1995	1985-93	1994	1995
Natural cycles	7	-	6	0.1	-	0.9
Clomiphene and hMG or FSH	2,717	69	49	44.9	8.1	7.6
hMG or FSH	143	7	11	2.4	0.8	1.7
GnRH analogues and hMG or FSH	3,176	777	582	52.5	91.1	89.7
Other	11	-	1	0.2	-	0.2
Not stated	55	16	-			
<b>All drugs</b>	<b>6,109</b>	<b>869</b>	<b>649</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 63: GIFT treatment cycle in which conception occurred, 1985-1995**

Treatment cycle	Number			Per cent		
	1985-93	1994	1995	1985-93	1994	1995
1	2,788	430	332	46.2	50.7	51.5
2	1,523	219	157	25.2	25.8	24.3
3	803	92	81	13.3	10.8	12.6
4	411	52	43	6.8	6.1	6.7
5 or more	516	55	32	8.5	6.5	5.0
Not stated	68	21	4			
<b>All cycles</b>	<b>6,109</b>	<b>869</b>	<b>649</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 64: Number of oocytes collected by laparoscopy or ultrasound guidance, GIFT pregnancies, 1985-1995**

Number of oocytes collected	1985-93		1994		1995	
	Number	Per cent	Number	Per cent	Number	Per cent
1-2	292	4.8	46	5.5	38	5.9
3-4	1,275	21.1	146	17.3	110	17.1
5-6	1,372	22.8	166	19.7	125	19.4
7-8	1,359	22.5	160	19.0	106	16.5
9-10	618	10.3	119	14.1	99	15.4
11-12	420	7.0	82	9.7	59	9.2
13-14	269	4.5	38	4.5	39	6.1
15 or more	424	7.0	86	10.2	67	10.4
Not stated	80		26		6	
<b>All pregnancies</b>	<b>6,109</b>	<b>100.0</b>	<b>869</b>	<b>100.0</b>	<b>649</b>	<b>100.0</b>
Mean number of oocytes	7.5*		8.3		8.3	

\* Data include 1987-1993

**Table 65: Number of oocytes transferred, GIFT pregnancies, 1985-1995**

Number of oocytes transferred	Number			Per cent		
	1985-93	1994	1995	1985-93	1994	1995
1	89	13	8	1.5	1.5	1.2
2	961	270	237	15.9	31.4	36.9
3	3,361	537	361	55.5	62.5	56.1
4	1,488	39	30	24.6	4.5	4.7
5 or more	153	-	7	2.5	-	1.1
Not stated	57	10	6			
<b>All pregnancies</b>	<b>6,109</b>	<b>869</b>	<b>649</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Mean number of oocytes	3.1	2.7	2.7			

**Table 66: Outcome of GIFT pregnancies by number of oocytes transferred, 1995**

Outcome of pregnancy	Number of oocytes transferred					All** pregnancies
	1	2	3	4	5+	
	<b>Number</b>					
Spontaneous abortion	2	35	68	8	3	116
Termination of pregnancy	1	2	4	-	-	7
Ectopic pregnancy	-	6	6	1	1	14
Stillbirth	-	6	3	-	-	9
Live birth	5	188	280	21	3	503
<b>All outcomes</b>	<b>8</b>	<b>237</b>	<b>361</b>	<b>30</b>	<b>7</b>	<b>649</b>
	<b>Per cent</b>					
Spontaneous abortion	25.0	14.8	18.8	26.7	42.9	17.9
Termination of pregnancy	12.5	0.8	1.1	-	-	1.1
Ectopic pregnancy	-	2.5	1.7	3.3	14.3	2.2
Stillbirth	-	2.5	0.8	-	-	1.4
Live birth *	62.5	79.3	77.6	70.0	42.9	77.5
<b>All outcomes</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\* Multiple pregnancies with both stillbirths and live births are included only in the live birth category

\*\* Includes 6 pregnancies in which the number of oocytes transferred was not stated

**Table 67: Drugs used in luteal phase after GIFT, 1985-1995**

Drugs	Number			Per cent		
	1985-93	1994	1995	1985-93	1994	1995
Proluton	40	4	85	0.7	0.5	13.1
Human chorionic gonadotrophin (hCG)	3,811	649	479	63.0	74.9	73.8
Human chorionic gonadotrophin / Proluton	287	1	19	4.7	0.1	2.9
Progestagen	710	155	17	11.7	17.9	2.6
Other drugs	6	-	-	0.1	-	-
None	1,195	58	49	19.8	6.7	7.6
Not stated	60	2	-			
<b>All pregnancies</b>	<b>6,109</b>	<b>869</b>	<b>649</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 68: Outcome of pregnancy in maternal age groups, GIFT pregnancies, 1985-1995**

Outcome of pregnancy	Maternal age (years)					
	Less than 25	25 - 29	30 - 34	35 - 39	40 and over	All ages*
	<b>Number</b>					
Spontaneous abortion	31	277	629	475	166	1,579
Termination of pregnancy	1	5	12	12	14	44
Ectopic pregnancy	8	64	114	60	10	256
Stillbirth	2	16	34	29	4	85
Live birth	155	1,471	2,513	1,318	204	5,663
<b>All outcomes</b>	<b>197</b>	<b>1,833</b>	<b>3,302</b>	<b>1,894</b>	<b>398</b>	<b>7,627</b>
	<b>Per cent</b>					
Spontaneous abortion	15.7	15.1	19.0	25.1	41.7	20.7
Termination of pregnancy	0.5	0.3	0.4	0.6	3.5	0.6
Ectopic pregnancy	4.1	3.5	3.5	3.2	2.5	3.4
Stillbirth	1.0	0.9	1.0	1.5	1.0	1.1
Live birth	78.7	80.3	76.1	69.6	51.3	74.2
<b>All outcomes</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

\* Includes 3 pregnancies in which maternal age was not stated

**Table 69: Spontaneous abortions, GIFT pregnancies, 1985-1995**

Outcome of pregnancy	1985-92	1993	1994	1995	1985-95
Spontaneous abortion	1,095	190	178	116	1,579
Stillbirth	60	4	12	9	85
Live birth	3,715	790	655	503	5,663
Total abortions and births	4,870	984	845	628	7,327
Spontaneous abortion rate (%)	22.5	19.3	21.1	18.5	21.6

**Table 70: Incidence of spontaneous abortions in maternal age groups, GIFT pregnancies, 1985-1995**

Maternal age (years)	Number of GIFT pregnancies*	Spontaneous abortions	
		Number	Per cent
Less than 25	188	31	16.5
25 - 29	1,764	277	15.7
30 - 34	3,176	629	19.8
35 - 39	1,822	475	26.1
40 - 44	355	155	43.7
45 and over	19	11	57.9
Not stated	3	1	
All ages	7,327	1,579	21.6

\* Spontaneous abortions and pregnancies of at least 20 weeks' gestation

**Table 71: Ectopic pregnancies after GIFT, 1985-1995**

Outcome of pregnancy	1985-92	1993	1994	1995	1985-95
Ectopic pregnancies	191	30	21	14	256
Clinical pregnancies	5,087	1,022	869	649	7,627
% ectopic pregnancies	3.8	2.9	2.4	2.2	3.4
Total abortions and births	4,896	992	848	635	7,371
Ectopic pregnancy ratio *	1:25.6	1:33.1	1:40.4	1:45.4	1:28.8

\* Ratio of ectopic pregnancies: total abortions and births

**Table 72: Heterotopic pregnancies after GIFT, 1985-1995**

Type of heterotopic pregnancy	Year						
	1985-89	1990	1991	1992	1993	1994	1995
	<b>Number</b>						
Abortion	11	5	3	2	2	2	1
Birth	9	-	5	1	1	-	-
<b>All heterotopic pregnancies</b>	<b>20</b>	<b>5</b>	<b>8</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>1</b>
All pregnancies	2,268	781	1,002	1,036	1,022	869	649
	<b>Per cent</b>						
Abortion	0.5	0.6	0.3	0.2	0.2	0.2	0.2
Birth	0.4	-	0.5	0.1	0.1	-	-
<b>All heterotopic pregnancies</b>	<b>0.9</b>	<b>0.6</b>	<b>0.8</b>	<b>0.3</b>	<b>0.3</b>	<b>0.2</b>	<b>0.2</b>

**Table 73: Reported complications of pregnancy, GIFT pregnancies, 1990-1995**

Pregnancy complications	Number			Per cent		
	1990-93	1994	1995	1990-93	1994	1995
None	1,771	432	432	65.4	63.7	66.1
Threatened abortion	221	28	28	6.5	6.8	4.4
Antepartum haemorrhage	71	13	24	1.6	1.3	1.7
Pregnancy-induced hypertension	211	52	40	5.0	8.4	7.3
Placenta praevia	26	6	4	1.4	1.3	0.7
Other complications	622	134	96	20.0	18.5	19.7
Not stated	919	204	25			
<b>All pregnancies</b>	<b>3,841</b>	<b>869</b>	<b>649</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 74: Duration of singleton and multiple GIFT pregnancies of at least 20 weeks' gestation, 1995**

Gestational age (weeks)	Singleton		Twin		Triplet		All pregnancies*	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
20 - 23	2	0.5	2	2.0	1	7.1	5	1.0
24 - 27	5	1.3	2	2.0	-	-	7	1.4
28 - 31	6	1.6	8	8.1	-	-	14	2.8
32 - 36	35	9.1	46	46.5	13	92.9	95	19.1
37 - 41	333	86.7	41	41.4	-	-	374	75.1
42 or more	3	0.8	-	-	-	-	3	0.6
20 - 36	48	12.5	58	58.6	14	100.0	121	24.3
Not stated	10		3		-		13	
<b>All gestational ages</b>	<b>394</b>	<b>100.0</b>	<b>102</b>	<b>100.0</b>	<b>14</b>	<b>100.0</b>	<b>511</b>	<b>100.0</b>

\* Includes 1 quadruplet pregnancy

**Table 75: Maternal age and duration of singleton GIFT pregnancies of at least 20 weeks' gestation, 1995**

Gestational age (weeks)	Maternal age (years)					All ages
	Less than 25	25 - 29	30 - 34	35 - 39	40 and over	
	<b>Number</b>					
20 - 27	-	-	3	4	-	7
28 - 31	-	2	4	-	-	6
32 - 36	-	8	14	11	2	35
37 or more	6	67	153	83	27	336
Not stated	-	3	4	3	-	10
<b>All gestational ages</b>	<b>6</b>	<b>80</b>	<b>178</b>	<b>101</b>	<b>29</b>	<b>394</b>
20 - 36	-	10	21	15	2	48
	<b>Per cent</b>					
20 - 27	-	-	1.7	4.1	-	1.8
28 - 31	-	2.6	2.3	-	-	1.6
32 - 36	-	10.4	8.0	11.2	6.9	9.1
37 or more	100.0	87.0	87.9	84.7	93.1	87.5
<b>All gestational ages</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
20 - 36	-	13.0	12.1	15.3	6.9	12.5

**Table 76: Causes of infertility and duration of singleton GIFT pregnancies of at least 20 weeks' gestation, 1995**

Gestational age (weeks)	Causes of infertility					
	Tubal	Male	Endometriosis	Multiple	Unexplained	All causes*
	<b>Number</b>					
20 - 27	-	1	1	1	3	7
28 - 31	-	-	1	3	2	6
32 - 36	-	4	4	10	12	35
37 or more	6	50	43	111	91	336
Not stated	-	1	1	4	3	10
<b>All gestational ages</b>	<b>6</b>	<b>56</b>	<b>50</b>	<b>129</b>	<b>111</b>	<b>394</b>
20 - 36	-	5	6	14	17	48
	<b>Per cent</b>					
20 - 27	-	1.8	2.0	0.8	2.8	1.8
28 - 31	-	-	2.0	2.4	1.9	1.6
32 - 36	-	7.3	8.2	8.0	11.1	9.1
37 - or more	100.0	90.9	87.8	88.8	84.3	87.5
<b>All gestational ages</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
20 - 36	-	9.1	12.2	11.2	15.7	12.5

\* Includes 42 pregnancies with 'other' or 'not stated' causes of infertility

**Table 77: Plurality of GIFT pregnancies of at least 20 weeks' gestation, 1985-1995**

Plurality	Number			Per cent		
	1985-93	1994	1995	1985-93	1994	1995
Singletons	3,390	492	394	74.2	73.8	77.1
Twins	1,000	147	102	21.9	22.0	20.0
Triplets	165	26	14	3.6	3.9	2.7
Quadruplets	12	2	1	0.3	0.3	0.2
Quintuplets	2	-	-	0.0	-	-
<b>All pregnancies</b>	<b>4,569</b>	<b>667</b>	<b>511</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Table 78: Plurality of GIFT pregnancies of at least 20 weeks' gestation and number of oocytes transferred, 1995**

Number of oocytes transferred	Plurality							
	Singleton		Twin		Triplet		All pregnancies*	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
1	5	100.0	-	-	-	-	5	100.0
2	156	80.8	33	17.1	3	1.6	193	100.0
3	210	74.2	63	22.3	10	3.5	283	100.0
4	17	81.0	3	14.3	1	4.8	21	100.0
5 or more	2	66.7	1	33.3	-	-	3	100.0
Not stated	4		2		-		6	
<b>All pregnancies</b>	<b>394</b>	<b>77.1</b>	<b>102</b>	<b>20.0</b>	<b>14</b>	<b>2.7</b>	<b>511</b>	<b>100.0</b>

\* Includes 1 quadruplet pregnancy

**Table 79: Method of delivery for singleton and multiple GIFT pregnancies of at least 20 weeks' gestation, 1995**

Plurality	Method of delivery				
	Vaginal		Caesarean section		All methods*
	Number	Per cent	Number	Per cent	Number
Singleton	266	68.4	123	31.6	394
Twin	43	42.6	58	57.4	102
Triplet	1	7.7	12	92.3	14
Quadruplet	-	-	1	100.0	1
<b>All pregnancies</b>	<b>310</b>	<b>61.5</b>	<b>194</b>	<b>38.5</b>	<b>511</b>

\* Includes 7 pregnancies in which the method of delivery was not stated



**Table 80: Sex of infants in singleton and multiple GIFT births of at least 20 weeks' gestation, selected conception cohorts, 1985-1995**

Plurality	Male			Female			Sex ratio (M:F)		
	1985-93	1994	1995	1985-93	1994	1995	1985-93	1994	1995
Singletons	1,754	262	198	1,620	227	195	108.3	115.4	101.5
Twins	1,006	153	107	986	140	97	102.0	109.3	110.3
Triplets	282	39	19	213	38	22	132.4	102.6	86.4
Quadruplets	29	3	1	19	5	3	152.6	60.0	33.3
Quintuplets	4	-	-	6	-	-	66.7	-	-
<b>All births</b>	<b>3,075</b>	<b>457</b>	<b>325</b>	<b>2,844</b>	<b>410</b>	<b>317</b>	<b>108.1</b>	<b>111.5</b>	<b>102.5</b>

Note: Infant's sex was not stated or indeterminate for 32 births

**Table 81: Birthweight of GIFT live births and stillbirths, 1995**

Birthweight (g)	Live births		Stillbirths		All births	
	Number	Per cent	Number	Per cent	Number	Per cent
Less than 500	3	0.5	2	20.0	5	0.8
500 - 999	12	1.9	5	50.0	17	2.7
1000 - 1499	25	4.0	1	10.0	26	4.1
1500 - 1999	53	8.5	1	10.0	55	8.6
2000 - 2499	95	15.3	-	-	97	15.2
2500 - 2999	138	22.3	-	-	139	21.7
3000 - 3499	174	28.1	1	10.0	179	28.0
3500 - 3999	97	15.6	-	-	98	15.3
4000 and over	23	3.7	-	-	24	3.8
Not stated	-	-	3	-	5	-
<b>All birthweights</b>	<b>620</b>	<b>100.0</b>	<b>13</b>	<b>100.0</b>	<b>645</b>	<b>100.0</b>
Mean birthweight (g)	2,829		1,083		2,803	

**Table 82: Birthweight of infants in singleton and multiple GIFT births of at least 20 weeks' gestation, 1995**

Birthweight (g)	Singleton		Twin		Triplet		All births*	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Less than 500	1	0.3	3	1.5	1	2.4	5	0.8
500 - 999	9	2.3	6	3.0	2	4.8	17	2.7
1000 - 1499	8	2.0	11	5.5	6	14.3	26	4.1
1500 - 1999	10	2.5	28	14.0	15	35.7	55	8.6
2000 - 2499	25	6.3	57	28.5	14	33.3	97	15.2
2500 - 2999	71	18.0	64	32.0	4	9.5	139	21.7
3000 - 3499	153	38.8	26	13.0	-	-	179	28.0
3500 - 3999	93	23.6	5	2.5	-	-	98	15.3
4000 and over	24	6.1	-	-	-	-	24	3.8
Less than 2500	53	13.5	105	52.5	38	90.5	200	31.3
Not stated	1		4		-		5	
<b>All birthweights</b>	<b>395</b>	<b>100.0</b>	<b>204</b>	<b>100.0</b>	<b>42</b>	<b>100.0</b>	<b>645</b>	<b>100.0</b>
Mean birthweight (g)	3,134		2,371		1,859		2,803	

\* Includes 4 quadruplet births

**Table 83: Outcome of infants in singleton and multiple GIFT births of at least 20 weeks' gestation, 1995**

Outcome	Singleton	Twin	Triplet	Quadruplet	All births*
Live births	385	198	42	4	629
Stillbirths	7	6	-	-	13
<b>All births</b>	<b>395</b>	<b>204</b>	<b>42</b>	<b>4</b>	<b>645</b>
Neonatal deaths	-	3	3	-	6
Perinatal deaths	7	9	3	-	19
Stillbirth rate per 1,000 total births	17.7	29.4	-	-	20.2
Neonatal death rate per 1,000 live births	-	15.2	71.4	-	9.5
Perinatal mortality rate per 1,000 total births	17.7	44.1	71.4	-	29.5

\* Includes 3 births for which birth status was unknown

**Table 84: Major congenital malformations in singleton and multiple GIFT births of at least 20 weeks' gestation, 1985-1995**

Outcome	Singleton	Multiple	All births*
Total births	4,304	3,187	7,491
Congenital malformations			
- number	121	70	191
- rate (per cent)	2.8	2.2	2.5

\* Includes 27 abortions for fetal abnormality at gestational ages of at least 16 weeks

## 6 Bibliography

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This bibliography lists references to scientific, epidemiological and social studies on in-vitro fertilisation and other methods of assisted conception in Australia and New Zealand which have been published or made available since the previous report for 1994 and 1995.

Ammit AJ and O'Neill C. Optimisation of a method for deactivation of platelet-activating-factor-acetylhydrolase in serum for use in in vitro fertilisation culture media. *Human Reprod* 1997;12(4):785-91.

Annual Report to the Minister. Adelaide, South Australia. South Australian Council on Reproductive Technology. 1997; 9. pp 22

Annual Report. July 1 1996-June 30 1997. Perth, Western Australia. Western Australian Reproductive Technology Council. 1997; pp 50

Baker H. Male infertility. *Endocrinol Metabol Clinics Nth America* 1994;23:783-793

Catt JW, Ryan JP, Pike IL, Porter R, and Saunders DM. Successful pregnancy after fertilisation using intracytoplasmic sperm injection of sperm lacking acrosomes. *Aust NZ J Obstet Gynaecol* 1996;36(1):61-2.

Clarke GN, Bourne H, and Baker HWG. Intracytoplasmic sperm injection for treating infertility associated with sperm autoimmunity. *Fertil and Steril* 1997;68(1):112-7.

Clarke GN, Bourne H, Hill P, Johnston WIH, Speirs A, McBain JC, and Baker HWG. Artificial insemination and in vitro fertilisation using donor spermatozoa-a report on 15 years of experience. *Human Reprod* 1997;12(4):722-6.

Clarke GN. A simplified quantitative cervical mucus penetration test. *Human Reprod* 1997;12(6):1184-7.

Cook D, Schiewe M, Osborn S, Asch R, Jansen R, Johnston W. Intracytoplasmic sperm injection and embryo development of human oocytes cryopreserved using 1,2-propanediol. *Human Reprod* 1995;10:2637-2641.

Daniels KR. Policy directions for assisted human reproduction in New Zealand. *Journal of Fertility Counselling* 1995;2(1):14-16.

Daniels KR and Lewis G. Openness of information in the use of donor gametes: developments in New Zealand. *Journal of Reproductive and Infant Psychology* 1996;14:57-68.

Daniels KR. Gamete donation and its impact on relationships. *Western Australia Reproductive Technology Council Annual Report* 1996;Appendix 4:2-11.

Daniels KR and Burn I. Access to assisted human reproduction services by minority groups. *Australia and New Zealand Journal of Obstetrics and Gynaecology* 1997;37(1):79-85.

Daniels KR and Hargreaves K. The policy and ethics of surrogacy in New Zealand: who is left holding the baby? *Otago Bioethics Report* 1997;6(2):1-4&15.

Dunphy BC, Shepherd S, and Cooke ID. Impact of the learning curve on term delivery rates following laparoscopic salpingostomy for infertility associated with distal tubal occlusive disease. *Human Reprod* 1997;12(6):1181-3.

Edirisinghe WR, Junk SM, Matson L, and Yovich JL. Birth from cryopreserved embryos following in vitro maturation of oocytes and intracytoplasmic sperm injection. *Human Reprod* 1997;12(5):1056-8.

Garrett C, Liu DY, and Baker HWG. Selectivity of the human sperm zona pellucida binding process to sperm head morphometry. *Fertil and Steril* 1997;67(2):362-71.

Harrison K. Iodixanol as a density gradient medium for the isolation of motile spermatozoa. *J Assist Reprod Genetics* 1997;14:385-7.

Harrison KL and Harrison M. Predictive ability of strict and W.H.O. sperm morphology criteria for in vitro fertilisation. *Aust J Med Sci* 1996;171:14-6.

Harrison KL, Pollock HJ, Breen TM, and Harrison M. Incidence of semen parameter defects related to occupation in infertility patients. *J Assist Reprod Genetics* 1997;14 (Suppl)109S

Harrison KL, Sherrin DA, West GA, Harrison M, and Keeping JD. Oocyte fertilisation achieved by intracytoplasmic sperm injection in a case of globozoospermia. *Aust J Med Sci* 1997;188:7-8.

I.C.S.I. Intra-cytoplasmic Sperm Injection. Weighing up the benefits and risks of this innovative treatment for male infertility. Perth, Western Australia. The Western Australian Reproductive Technology Council. 1997; pp 58

Imeson M and McMurray A. Couples' experiences of infertility-a phenomenological study. *J Adv Nursing* 1996;24(5):1014-22.

Jequier AM and Cummins JM. Attitudes to clinical andrology: a time for change. *Human Reprod* 1997;12:875-6.

Jequier AM, Grudzinkas JG, Yovich JL, editors. *The Spermatozoon*. Cambridge: Cambridge University Press; 1995; Clinical disorders affecting semen quality.

Jequier AM. High performance aircraft-a possible cause of male infertility. *Br J Urol* 1996;77:920-2.

Lancaster PAL. Registers of in vitro fertilisation and assisted conception. *Human Reprod* 1996;11(Suppl 4):89-104.

Liu DY, Bourne H, and Baker HWG. High fertilisation and pregnancy rates after intracytoplasmic sperm injection in patients with disordered zona pellucida-induced acrosome reaction. *Fertil and Steril* 1997;67(5):955-8.

Lloyd M. The language of reproduction-is it doctored. *Qual Health Res* 1997;7(2):184-201.

Matson PL, Graefling J, Junk SM, Yovich JL, and Edirisinghe WR. Cryopreservation of oocytes and embryos-use of a mouse model to investigate effects upon zona hardness and formulate treatment strategies in an in vitro fertilisation programme. *Human Reprod* 1997;12(7):1550-3.

McMahon CA, Ungerer JA, Beaurepaire J, Tennant CC, and Saunders DM. Anxiety during pregnancy and fetal attachment after in vitro fertilisation conception. *Human Reprod* 1997;12(1):176-82.

- McMahon CA, Ungerer JA, Tennant C, and Saunders D. Psychosocial adjustment and the quality of the mother-child relationship at four months postpartum after conception by in vitro fertilisation. *Fertil and Steril* 1997;68(3):492-500.
- Mooohan JM, Curcio K, Leoni M, Healy D, and Hurley V. Low intraovarian vascular resistance-a marker for severe ovarian hyperstimulation syndrome. *Fertil and Steril* 1997;67(4):728-32.
- Moore A and Mulgan T. The ethics of non-commercial IVF surrogacy. *Health Care Anal* 1997;5(1):85-91.
- Mortimer ST, Schoevaert D, Swan MA, and Mortimer D. Quantitative observations of flagellar motility of capacitating human spermatozoa. *Human Reprod* 1997;12(5):1006-12.
- National Health and Medical Research Council. Long-term effects on women from assisted conception. Canberra: Australia Government Publishing Service, 1995.
- Nieto FS, Watkins WB, Lopata A, Baker HWG, and Edgar DH. The effects of coculture with autologous cryopreserved endometrial cells on human in vitro fertilisation and early embryo morphology-a randomised study. *J Assist Reprod Genetics* 1996;13(5):386-9.
- Pandiyan N and Jequier AM. Mitotic chromosomal anomalies among 1210 infertile men. *Human Reprod* 1996;12:2604-8.
- Payne D, Flaherty S, Jeffrey R, Warnes G, Matthews C. Successful treatment of severe male factor infertility in 100 consecutive cycles using intracytoplasmic sperm injection. *Human Reprod* 1994;9:2051-2057
- Persson JW, Peters GB, and Saunders DM. Is ICSI associated with risks of genetic disease? Implications for counselling practice and research. *Human Reprod* 1996;11(5):921-32.
- Peterson J, Jago M, Stewart P. Permanent testicular damage induced in rats by a single dose of tunicamycin. *Reprod Toxicol* 1996;10(1):61-9.
- Rombauts L, Dear M, Breheny S, and Healy DL. Cumulative pregnancy and live birth rates after gamete intra-fallopian transfer. *Human Reprod* 1997;12(6):1338-42.
- Sathananthan AH. Mitosis in the human embryo-the vital role of the sperm centrosome (centriole). *Histo Histopathol* 1997;12(3):827-56.
- Saunders DM and Garner F. Oocyte donation using "known" donors: it may seem the convenient answer but who pays? *Human Reprod* 1996;
- Saunders DM, Ferrier A, and Ryan JP. Fertility preservation in female oncology patients. *Int J Gynaecol Cancer* 1996;6:161-7.
- Saunders DM, Porter RN, Persson JW, and Ryan J. Should we consider freezing oocytes as part of surgical management in young single women? *Aust NZ J Surg* 1996;66:63
- Tong S, Caddy D, and Short RV. Use of dizygotic to monozygotic twinning ratio as a measure of fertility. *Lancet* 1997;349(9055):843-5.
- Walker SK, Hartwich KM, and Seamark RF. The production of unusually large offspring following embryo manipulation-concepts and challenges. *Theriogenol* 1996;45(1):111-20.

Warnes GM, Payne D, Jeffrey R, Hourigan L, Kirby C, Kerin J, and Matthews C. Reduced pregnancy rates following the transfer of human embryos frozen or thawed in culture media supplemented with normal serum albumin. *Human Reprod* 1997;12(7):1525-30.

Watkins W, Nieto F, Bourne H, Wutthiphon B, Speirs A, and Baker HWG. Testicular and epididymal sperm in a microinjection program-methods of retrieval and results. *Fertil and Steril* 1997;67(3):527-35.

Woolcott R and Stanger J. Potentially important variables identified by transvaginal ultrasound-guided embryo transfer. *Human Reprod* 1997;12(5):963-6.

Zhang Z and Baker HWG. The effect of 12-myristate 13-acetate phorbol ester on human sperm hyperactivation. *Fertil and Steril* 1997;67(6):1140-5.

# Appendix 1 Definitions

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**Clinical pregnancy:** Any type of pregnancy except that diagnosed only by measuring levels of human chorionic gonadotrophin. This definition includes ectopic pregnancy, blighted ovum and spontaneous abortion.

**Conception cohort:** A designated group of pregnancies resulting from conception in a specified period of time (usually either a single year or several years combined).

**Ectopic pregnancy:** Pregnancy occurring outside the uterus.

**Fetal death (stillbirth):** Death prior to the complete expulsion or extraction from its mother of a product of conception of 20 or more completed weeks of gestation or of 400g or more birthweight; the death is indicated by the fact that after such separation the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.

**Heterotopic pregnancy:**

Heterotopic pregnancies are those in which there is both a uterine and tubal (ectopic) pregnancy simultaneously. The uterine pregnancy may abort or may continue on to a birth.

**Live birth:** Infant with signs of life after pregnancy of at least 20 weeks' gestation.

**Live-birth pregnancy:** A pregnancy resulting in one or more live births.

**Low birthweight:** A liveborn or stillborn infant weighing less than 2500g at birth.

**Neonatal death:** A death of a liveborn infant within 28 days of birth (expressed as a rate per 1,000 live births).

**Perinatal death:** Includes both stillbirths and neonatal deaths (expressed as a rate per 1,000 total births).

**Postneonatal death:** A death of a liveborn infant more than 28 days after birth but within the first year (expressed as a rate per 1,000 live births).

**Preterm birth:** A liveborn or stillborn infant of less than 37 weeks' gestation.

**Spontaneous abortion:** Pregnancy detected clinically or by ultrasound and less than 20 weeks' gestation (from the first day of the last menstrual period).

**Stillbirth:** See fetal death.

**Viable pregnancy:** A pregnancy of at least 20 weeks' gestation.



REGISTER OF PREGNANCIES AFTER IVF OR RELATED PROCEDURES

Please complete all data items by ticking relevant boxes

IVF Unit/Hospital: \_\_\_\_\_ Identification number: \_\_\_\_\_

Usual home address : Marital status : Date of birth Age  
 Suburb/Town \_\_\_\_\_ : [ ] Married/De facto : Mother \_\_\_/\_\_\_/\_\_\_ \_\_\_ yrs  
 State \_\_\_\_\_ Postcode \_\_\_\_\_ : [ ] Single [ ] Other : Father \_\_\_/\_\_\_/\_\_\_ \_\_\_ yrs

NUMBER OF PREVIOUS PREGNANCIES: : TYPE OF CONCEPTION IN CURRENT PREGNANCY:  
 Current marriage Previous marriages :  
 Livebirths \_\_\_\_\_ Mother:livebirths \_\_\_\_\_ : [ ] IVF [ ] PROST/ZIFT [ ] TEST  
 Abortions \_\_\_\_\_ other \_\_\_\_\_ : [ ] GIFT [ ] ICSI [ ] SUZI  
 Other \_\_\_\_\_ Father:livebirths \_\_\_\_\_ : [ ] Epididymal sperm [ ] Assisted hatching  
 other \_\_\_\_\_ : [ ] Other (specify) \_\_\_\_\_

Did this pregnancy result from use of:  
 [ ] Donor sperm [ ] Donor oocyte [ ] Frozen embryo  
 [ ] Donor embryos [ ] Frozen oocytes  
 What was the date of embryo freezing? ---/---/--- : If donor oocyte or embryo, what was  
 : the age of the donor?  
 What was the date of embryo transfer? \_\_\_/\_\_\_/\_\_\_ : \_\_\_\_\_ yrs

CAUSE OF INFERTILITY PRIOR TO THIS PREGNANCY [ ] Unknown cause  
 Tubal [ ] Tubal obstruction [ ] Previous ectopic [ ] Salpingectomy  
 [ ] Sterilization [ ] Pelvic adhesions [ ] Pelvic inflammatory disease  
 [ ] Other tubal (specify) \_\_\_\_\_  
 Male factor [ ] Azoospermia [ ] Oligospermia  
 [ ] Increased abnormal sperm [ ] Male sperm antibodies  
 [ ] Decreased motility [ ] Other male (specify) \_\_\_\_\_  
 [ ] Endometriosis [ ] Ovulation defects [ ] Maternal sperm antibodies  
 [ ] 'Hostile' cervical mucus [ ] Other cause (specify) \_\_\_\_\_

DURATION OF INFERTILITY (before first IVF/GIFT pregnancy) \_\_\_\_\_ years

DRUGS USED TO INDUCE OVULATION IN OOCYTE RETRIEVAL CYCLE (specify each separately)  
 [ ] Clomiphene [ ] hMG [ ] hCG [ ] Endogenous LH surge  
 [ ] FSH [ ] Recomb DNA FSH [ ] Recomb DNA LH  
 [ ] GnRH-agonist (specify) \_\_\_\_\_ [ ] short protocol [ ] long protocol  
 (previous luteal phase)  
 [ ] None [ ] Other (specify) \_\_\_\_\_

DRUGS USED DURING CYCLE IN WHICH FROZEN EMBRYOS WERE TRANSFERRED(specify each separately)  
 [ ] None [ ] Oestrogen/progesterone [ ] Other (specify) \_\_\_\_\_

SPECIFY IN WHICH OOCYTE RETRIEVAL CYCLE THE PREGNANCY OCCURRED _____	: METHOD OF COLLECTING OOCYTES
Number of oocytes collected _____	: [ ] Laparoscopy
IF DONOR OOCYTES WERE USED, IN WHICH INDUCTION CYCLE DID PREGNANCY OCCUR _____	: [ ] Ultrasound-guided transvaginal
	: [ ] Other (specify) _____
Date of fertilization (or GIFT, etc) --/--/---	: Number of embryos/ova transferred _____
Was the patient hospitalised for ovarian hyperstimulation syndrome? [ ] Yes [ ] No	
DRUGS USED IN LUTEAL PHASE	: OBSTETRIC COMPLICATIONS
[ ] hCG: specify dose and duration _____	: [ ] None [ ] Pregnancy-induced hypertension
[ ] Progesterone: specify dose and duration _____	: [ ] Threatened abortion
[ ] Oestrogen/progesterone (frozen embryo transfer) _____	: [ ] Placenta praevia
[ ] Other (specify) _____	: [ ] Antepartum haemorrhage
[ ] None	: [ ] Embryo reduction
	: [ ] Other _____
NUMBER OF SACS SEEN IN EARLY PREGNANCY ON ULTRASOUND EXAMINATION _____	: [ ] Ultrasound not done
PREGNANCY OUTCOME	: [ ] Ectopic pregnancy
[ ] Spontaneous abortion (date __/__/__)	: [ ] Ovarian pregnancy
[ ] Missed abortion (date of curette --/--/--)	: [ ] Blighted ovum
[ ] Induced abortion (date __/__/__, specify malformations _____)	
[ ] Other (e.g. combined pregnancy) _____	
[ ] Pregnancy of 20 weeks or more	: Date of birth __/__/__
[ ] Multiple births (number _____)	
METHOD OF DELIVERY	: [ ] Vaginal [ ] Caesarean section
LIVEBIRTHS AND STILLBIRTHS	: 1 : 2 : 3
Sex	: M F : M F : M F
Birthweight	: _____g : _____g : _____g
Condition at birth (delete one)	: Live birth/ Stillbirth : Live birth/ Stillbirth : Live birth/ Stillbirth
If baby died, date of death	: __/__/__ : __/__/__ : __/__/__
Any congenital malformations?	: [ ] Yes [ ] No : [ ] Yes [ ] No : [ ] Yes [ ] No
Specify malformations or other abnormalities	: : :