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Assisted conception Australia and New Zealand 2000 and 2001

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Preface

This is the seventh annual report in the Assisted Conception Series published by the AIHW National Perinatal Statistics Unit (NPSU) and the final in this series. This report presents summary data for the year of treatment 2001 and notifications of pregnancy outcomes for year 2000. In 2002, the Fertility Society of Australia (FSA) in collaboration with the NPSU introduced a new system for data collection from IVF and GIFT units. The first report in the new series of assisted conception publications will present treatment and pregnancy outcome data for 2002 and be released in the next year. This final report is more concise and differs in content from earlier reports in the series.

This report has two parts:

- summary of key findings relating to all assisted conception treatments in year 2001 and pregnancy outcomes of assisted conception treatments in year 2000
- tabulations on trends and other characteristics of the data. Some tables have been retained for historical consistency and may not be discussed or referenced in part 1.

The report may be viewed online as a PDF file at the NPSU website:

http://www.npsu.unsw.edu.au

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Acknowledgements

The Assisted Conception Data Collection is a truly collaborative effort between the IVF and GIFT Units in Australia and New Zealand and the NPSU. Without the support of individual IVF and GIFT units and their staff, the collection would not have been sustained over the last 22 years. It is important to recognise and thank all the individuals in the IVF and GIFT Units for their support of the primary data collection, data queries and follow-ups. Without these committed individuals, especially clinic coordinators and scientists, who have carefully checked records to obtain further details of clinical outcomes, or have provided data on the numbers of women treated, cycles of treatment and laboratory procedures, we would not be able to complete this report.

We thank Professor Richard Henry, Professor Michael Chapman, Professor Douglas Saunders, Associate Professor Peter Illingworth, Dr Richard Madden and Dr David Molloy for reviewing the report and for providing valuable comments and suggestions.

We also would like to acknowledge Associate Professor Paul Lancaster for his long-term contribution to assisted conception data development and reporting.

Following is a list of the collaborating IVF and GIFT Units and their directors. We acknowledge their support in providing the data presented in this report.

Collaborating IVF and GIFT units

Listed in alphabetical order by states and territories:

Australian Capital Territory

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

New South Wales

Albury Reproductive Medicine Centre, Albury (Dr Scott Giltrap)

Fertility First, Hurstville NSW (Dr Anne Clark)

IVF Australia ? North Shore, Chatswood NSW (Professor Ric Porter)

IVF Australia ? Central Coast, Gosford NSW (Dr Malcolm Tucker)

IVF Australia ? Western Sydney, Westmead NSW (Professor Geoff L Driscoll)

IVF Australia ? South, Kogarah NSW (Professor Michael Chapman)

Regional centres or satellite units:

IVFA South, Haymarket NSW (Professor Michael Chapman)

IVF Australia ? East, Randwick NSW (Dr Graeme Hughes)

IVF NSW, Bondi Junction NSW (Dr Trevor Johnson)

RPAH Sydney IVF, Camperdown NSW (Dr Mark Bowman)

St George Fertility Centre, Hurstville NSW (Dr David C Macourt)

Sydney IVF, Sydney NSW (Professor Robert P S Jansen)

Regional centres or satellite units:

Sydney IVF Coffs Harbour, Coffs Harbour NSW

Sydney IVF Illawarra, Wollongong NSW

Sydney IVF Lismore, Lismore NSW

Sydney IVF Orange, Orange NSW

Sydney IVF Tamworth, Tamworth NSW

Sydney IVF Liverpool, Liverpool NSW (Professor Robert P S Jansen)

Sydney IVF Newcastle, Merewether NSW (Dr Robert Woolcott)

Westmead Fertility Centre, Westmead NSW (Professor Peter Illingworth)

Queensland

Central Queensland IVF, Rockhampton Qld (Dr Stephen Robson)

Coastal IVF Fertility Services, Maroochydore Qld (Dr Paul Stokes)

IVF Queensland Sunshine Coast, Nambour Qld (Dr James Moir)

Monash IVF Gold Coast Fertility Centre, Southport Qld (Dr Irving T Korman)

Monash IVF Queensland, Sunnybank Private Hospital Qld (Dr Kevin Forbes)

Queensland Fertility Group, Brisbane Qld (Dr David Molloy)

Regional centres or satellite units:

QFG North West, Everton Park Qld

QFG Gold Coast, Benowa Qld (Dr Andrew Cary)

QFG Mackay, Mackay Qld (Dr Lance Herron)

QFG Toowoomba IVF, Toowoomba Qld (Dr John Esler)

QFG Townsville, Hyde Park Qld (Dr Glen Schaefer)

Regional centres or satellite units:

QFG Cairns, Cairns Qld

The Wesley IVF Service, Auchenflower Qld (Dr John Allan)

South Australia

Flinders Reproductive Medicine, Bedford Park SA (Dr Stephen J Judd)

REPROMED, Dulwich SA (Professor Robert Norman)

Northern Territory

REPROMED, Tiwi NT (Dr Ossie Petrucco)

Tasmania

Launceston SIVF, Launceston Tas (Professor Robert Jansen)

Tasmanian IVF, Hobart Tas (Dr Bill Watkins)

Victoria

Melbourne Assisted Conception Centre, East Melbourne Vic (Dr Mac Talbot)

Melbourne IVF, East Melbourne Vic (Dr John McBain)

Mildura Reproductive Medicine Centre, Mildura Vic (Dr John Bowditch)

Monash IVF, Epworth Hospital, Richmond Vic (Professor Gab Kovacs)

Monash IVF, Monash Surgical Private Hospital, Clayton Vic (Professor Gab Kovacs)

Regional centres or satellite units:

Monash IVF Ballarat, Ballarat Vic (Dr Tim Sturrock)

Monash IVF Benalla, Benalla Vic (Dr Luk Rombauts)

Monash IVF Bendigo, Bendigo Vic (Dr Nick Lolatgis)

Monash IVF Casterton, Casterton Vic (Dr Richard Henshaw)

Monash IVF Geelong, Geelong Vic (Professor Gab Kovacs)

Monash IVF Northern, Broadmeadows Vic (Dr Mac Talbot)

Monash IVF Sale, Sale Vic (Dr Mac Talbot)

Monash IVF Shepparton, Shepparton Vic (Dr Luk Rombauts)

Reproductive Services, Carlton Vic (Dr John McBain)

Western Australia

Concept Fertility Centre, Subiaco WA (Dr Graeme Thompson)

Joondalup IVF, Joondalup WA (Dr Anne Jequier)

Hollywood Fertility Centre, Nedlands WA (Dr Simon Turner)

PIVET Medical Centre, Leederville WA (Dr John L Yovich)

New Zealand

Fertility Associates, Auckland NZ (Dr Richard Fisher)

Fertility Associates Hamilton, Hamilton NZ (Dr Stewart Hastie)

Fertility Associates Wellington, Wellington NZ (Professor John Hutton)

Fertility PLUS, Auckland NZ (Dr Guy Gudex)

The Fertility Centre, Christchurch NZ (Dr Peter Benny)

The Otago Fertility Service, Dunedin NZ (Associate Professor Wayne Gillett)

Financial support

We gratefully acknowledge financial support from the Fertility Society of Australia for the Assisted Conception Data Collection and report preparation. We also acknowledge the financial support from Australian Institute of Health Welfare and the University of New South Wales in supporting the NPSU in this data collection.

Requests for data

Any enquiries concerning data for individual IVF or GIFT units should be directed to the director of the IVF or GIFT unit concerned. Enquiries concerning data for states and territories that are not presented in the report should be directed to the Fertility Society of Australia. All other enquiries should be made to the AIHW National Perinatal Statistics Unit.

Abbreviations

NSW	New South Wales
Vic	Victoria
Qld	Queensland
WA	Western Australia
SA	South Australia
Tas	Tasmania
ACT	Australian Capital Territory
NT	Northern Territory
NZ	New Zealand

AIHW	Australian Institute of Health and Welfare
FSA	Fertility Society of Australia
NPSU	National Perinatal Statistics Unit
WHO	World Health Organization

ART	assisted reproductive technique
FSH	follicle stimulating hormone
GIFT	gamete intrafallopian transfer
GnRH	gonadotrophin-releasing hormone
hCG	human chorionic gonadotrophin
ICSI	intracytoplasmic sperm injection
IVF	in-vitro fertilisation
MESA	microepididymal sperm aspiration
n.a.	not available
PESA	percutaneous epididymal sperm aspiration
SUZI	subzonal insemination
TASA	testicular sperm aspiration
TESE	testicular sperm extraction
VPR	Viable pregnancy rate

Highlights

- During 2001, 28,797 treatment cycles were performed in Australia and New Zealand. There were 11,338 IVF transfer cycles, 13,836 ICSI transfer cycles and 341 GIFT transfer cycles.
- When all techniques of assisted conception are included together, the viable pregnancy rate increased from 13.0 per 100 embryos / gametes transfer cycles in 1992 to 20.6 in 2001.
- Pregnancy rates of different methods of treatments vary within and between individual IVF or GIFT units. The average clinical pregnancy rate (per 100 oocyte retrieval cycles) of IVF treatment using fresh embryos achieved by the most successful 25%of all units increased from 24.9% in 1998 to 34.4% in 2001.
- In 2001, more than four in five assisted conception treatment cycles transferred one or two embryos / oocytes.
- In 2000, the majority (72.3%) of pregnant women after assisted conception treatment were aged 30 to 39 years. The average age of all women who gave birth after assisted conception treatment was 33.6 years, 4.6 years older than average age (29.0) of Australian mothers in 2000.
- There were 945 (22.1%) multiple pregnancies in 2000. Twin pregnancies occurred in 21.1% of all pregnancies. Triplet and other higher order pregnancies occurred in 1.0%. GIFT treatment had the highest incidence (28.1%) of multiple pregnancies.
- Delivery by caesarean section was higher among assisted conception pregnancies. There were 1,991 (46.7%) reported caesarean deliveries in 2000. The caesarean rate was 68.5% in twin pregnancies and 95.2% in triplet pregnancies.
- In 2000, there were 5,466 pregnancies following assisted conception treatments in Australia and New Zealand.
- In 2000, there were 4,285 confinements of women of =20 weeks gestation following assisted conception in Australia and New Zealand. Of those 4,285 confinements, 3,901 were in Australia and 378 in New Zealand, an increase of 10.9% and 14.2% respectively from 1999.
- In 2000, there were 5,275 live births and fetal deaths from assisted conception. The fetal death rate was 1%, the lowest reported in the series. Of those births, 4,801 infants were born in Australia accounting for 1.9% of all births in 2000.
- In 2000 there were 109 reported perinatal deaths among births after assisted conception. Perinatal death rates have declined from 31.5 per 1,000 relevant births in 1991 to 20.7 per 1,000 relevant births in 2000. The perinatal death rate was about 2.5 times the overall perinatal death rate (8.3 per 1,000 relevant births) in Australia in 2000. Perinatal death rates are higher for multiple births than for singleton births. Perinatal death rate for twins was 34.3 per 1,000 relevant births and for triplets was 62.0 per 1,000 relevant births, compared with 11.7 per 1,000 relevant births in singletons in 2001.

1 Introduction

This report, *Assisted conception Australia and New Zealand 2000 and 2001*, has been prepared by the Australian Institute of Health and Welfare's National Perinatal Statistics Unit (NPSU) in conjunction with the collaborating IVF and GIFT units from Australia and New Zealand. The data in this report are based on notifications by individual IVF and GIFT units to the NPSU of assisted conception treatment cycles in 2001 and pregnancy outcomes of assisted conception treatment cycles undertaken in 2000.

The major purposes of this report are to place in the public domain:

- information on treatment cycles and pregnancy outcomes in Australia and New Zealand
- evidence of quality improvement through monitoring assisted conception treatment practices, pregnancy rates and perinatal outcomes
- information for state and territory, national and international comparisons.

The first IVF treatment in Australia was performed in 1979. This was followed by the first Australian-born IVF baby in 1980. In New Zealand, the first IVF baby was born in 1983. GIFT treatment was first used in Australia in 1985. The first microinsemination technique for treating mainly male infertility, subzonal insemination (SUZI), was introduced in 1990. Lately this has been superseded by the more successful ICSI technique. In 2000, assisted conception treatments accounted for almost 2% of all births in Australia and New Zealand.

This is the seventh annual report in the Assisted Conception Series published by the AIHW National Perinatal Statistics Unit and the final in this series. This report presents summary data for the year of treatment 2001 and notifications of pregnancy outcomes for year 2000. Comparative historical data are provided, where relevant.

Data sources

Data on treatment cycles and outcomes of pregnancy are collected from all IVF and GIFT units in Australia and New Zealand. There are 34 IVF units in Australia and 7 units in New Zealand. Data are collected continuously throughout the year.

This report includes tabulated and summarised data for different assisted conception methods, clinical pregnancies, viable pregnancies of at least 20 weeks gestation, characteristics of women, the use of donor sperm / oocytes / embryos and the use of frozen / thawed embryos. Over the years, the categories have changed slightly reflecting changes in assisted reproductive technology and development. There were no changes to data items in 2000 and 2001.

Other data used in this report include Australia's national perinatal data collection (AIHW National Perinatal Statistics Unit 2003) and perinatal death data (ABS 2001).

Data limitations

The outcome of pregnancies after assisted conception treatment in 2001 is not available for this report.

The ascertainment by IVF and GIFT units of the outcomes of assisted-conception-related pregnancies is limited because the ongoing care for the pregnancy is often carried out by non-IVF practitioners. Usually, the IVF or GIFT unit will attempt to follow up the outcome of a pregnancy with either the client or her clinician. In a proportion of cases this information is not available.

Information about artificial insemination in this report is limited to IVF and GIFT units and does not include data from procedures performed outside of IVF and GIFT units. Therefore, the use of artificial insemination in Australia and New Zealand cannot be estimated from these data. There is no information available on infants born from artificial insemination pregnancies.

Demographic data are limited to age. There is no risk factor or behavioural information.

Scope

The report provides data for assisted conception treatment or assisted reproductive technology (ART) treatment. These data include specific treatment methods of IVF (in-vitro fertilisation), ICSI (intracytoplasmic sperm injection) and GIFT (gamete intrafallopian transfer); and special techniques used in assisted conception treatment including assisted hatching, blastocyst culture and frozen embryos. Data on artificial insemination as a fertility treatment when performed at an IVF or GIFT unit are also included in this report.

Terms used in this report

- IVF, IVF method or IVF treatment—data for all IVF techniques, including when used in combination with GIFT technique; the only exception is ICSI technique
- ICSI, ICSI method or ICSI treatment—data for ICSI technique, including when used in combination with other IVF techniques
- GIFT method or GIFT treatment—data for GIFT technique
- Treatment—assisted conception treatment
- Pregnancy—assisted conception pregnancy unless otherwise stated
- Outcome—outcome of assisted conception pregnancies
- Viable pregnancy rate—viable pregnancies per 100 transfer cycles unless otherwise stated
- Live-birth pregnancy—a pregnancy that results in at least one liveborn infant in a singleton or multiple pregnancy.

Denominator for treatment cycles and pregnancy outcomes

All analyses of treatment cycles and pregnancy outcomes are based on the year of treatment. For example, when analysing treatment cycles, the phrase ‘in 2001’ means all treatment cycles carried out in 2001. When analysing pregnancy outcomes, ‘in 2000’ means outcome of pregnancies resulting from the treatments in 2000.

2 Assisted conception treatment

2.1 Treatment cycles and pregnancy rates

In 2001, there were 28,797 treatment cycles commenced where either oocytes were retrieved and / or embryos / gametes were transferred. Of these treatment cycles, 18,092 had oocytes retrieved and 10,705 had frozen embryos transferred (Figure 1).

In the 10-year period 1992–2001, the total number of treatment cycles (oocyte retrievals and embryo transfers) for all types of assisted conception has increased by 76.8% from 16,288 in 1992 to 28,797 in 2001. The largest increase of 158.3% was in transfers of frozen embryos, compared to 49.0% for fresh transfers.

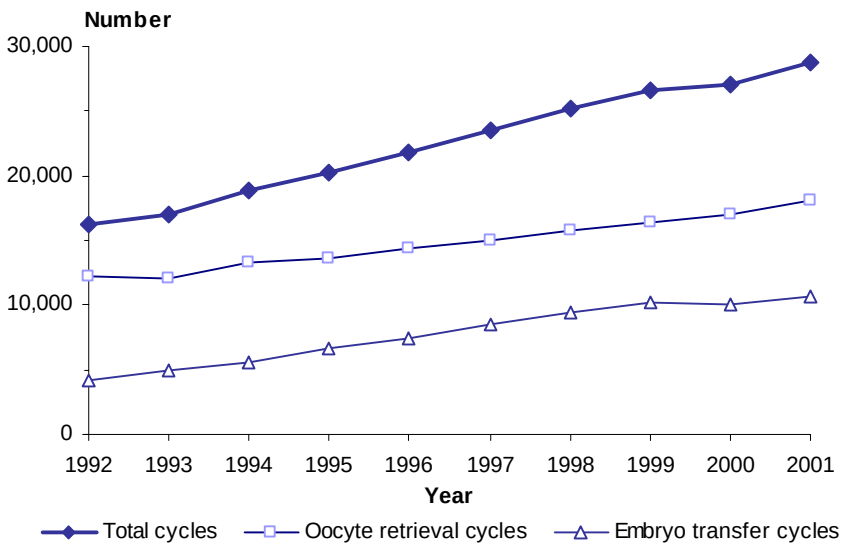


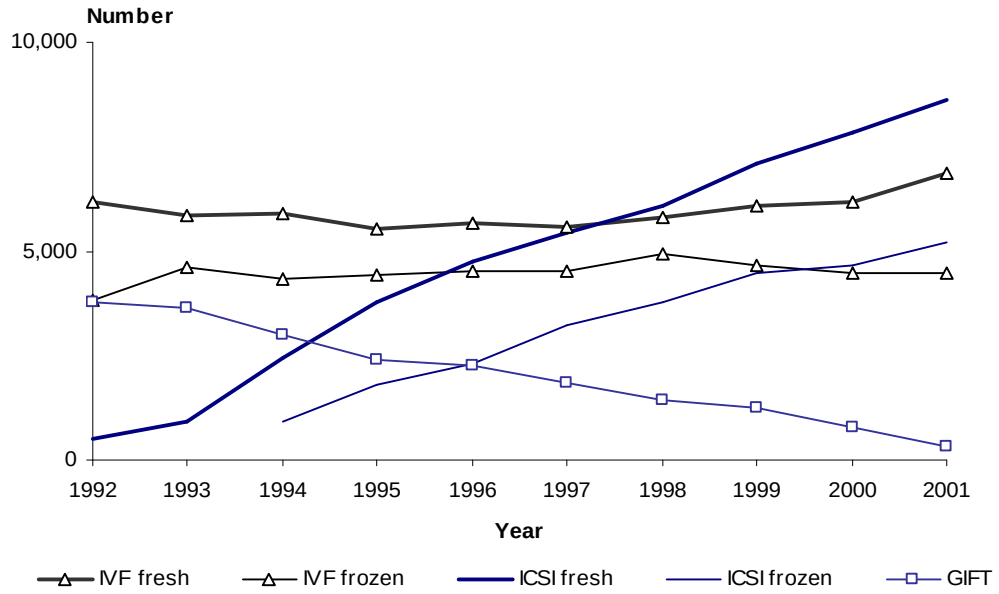
Figure 1: Oocyte retrieval cycle for fresh transfers and embryo transfer cycles for frozen or donor embryos, 1992–2001

In 2001, one in five transfer cycles achieved a viable pregnancy (a pregnancy of at least 20 weeks gestation). The viable pregnancy rate (per 100 transfer cycles) has increased from 13.0% in 1992 to 20.6% in 2001, an increase of 58.5% (Table 1).

2.2 Methods and techniques of assisted conception treatment

The viable pregnancy rate has steadily increased between 1992 and 2001. This section presents the viable pregnancy rates and outcomes for the methods of IVF, ICSI and

GIFT. Also presented are the outcomes resulting from use of the special techniques of assisted hatching, blastocyst culture, frozen embryos and artificial insemination.



Note: ICSI data for 1992–1995 include other types of microinsemination techniques such as subzonal insemination (SUZI).

Figure 2: Number of transfer cycles by methods of assisted conception, 1992–2001

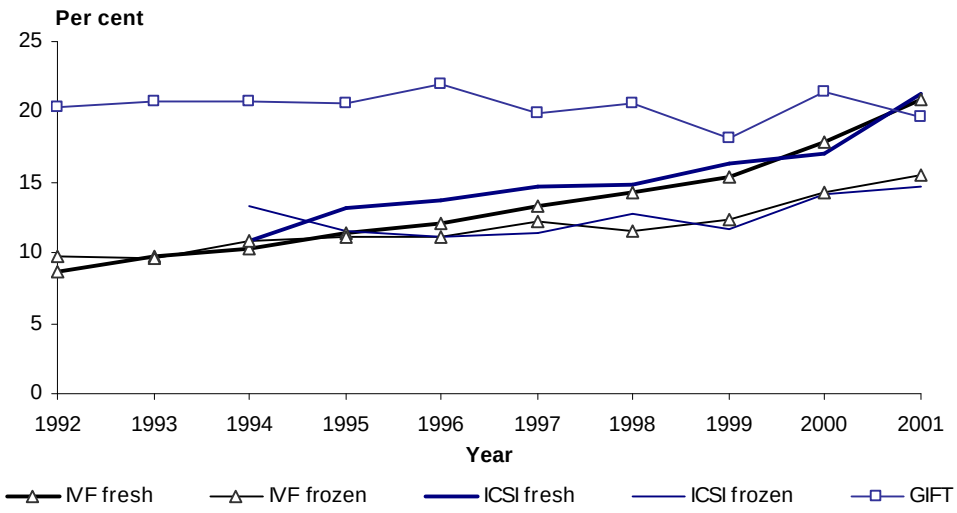


Figure 3: Viable pregnancy rates by methods of assisted conception, 1992–2001

In-vitro fertilisation (IVF)

The IVF treatment method was the first assisted conception method used in treating infertile couples. It is now routinely carried out in most IVF units.

In 2001, there were 11,338 IVF transfer cycles (Table 2). The overall viable pregnancy rate (per 100 transfer cycles) of IVF treatment method increased from 9.4% in 1992 to 20.8% in 2001 (Table 3). This reflects an average increase of 9.3% per year.

The total number of treatment cycles commenced for IVF increased by 7.9% from 8,626 in 2000 to 9,308 in 2001 (Table 2). The transfer of IVF fresh embryos increased by 11.5% from 6,176 in 2000 to 6,883 in 2001 (Figure 2). Of those 9,308 IVF cycles commenced, 86.2% (8,027) had oocytes retrieved and 74.0% (6,883) had fresh embryos transferred. The viable pregnancy rate (per 100 oocyte retrieval cycles) has increased from 17.9% in 2000 to 20.8% in 2001 (Figure 3).

There has been a marginal decrease in IVF embryo transfer cycles after freezing and thawing from 4,478 cycles in 2000 to 4,455 cycles in 2001 (Figure 2, Table 2). The viable pregnancy rate (per 100 transfer cycles) for transfer of frozen / thawed embryo has increased from 14.2% in 2000 to 15.5% in 2001 (Figure 3).

From 1991 to 2000, IVF pregnancies totalled 18,614, resulting in the birth of 17,004 IVF infants. In 2000, there were 2,591 IVF pregnancies and 2,502 IVF infants (Tables 20 and 55).

Intracytoplasmic sperm injection (ICSI)

Successful treatment outcomes by using the ICSI method were first reported by scientific journals in 1992. Since 1996 it has been widely used in Australia and New Zealand. The ICSI treatment method is mainly used for male infertility.

In 2001, there were 13,836 ICSI transfer cycles (Table 2). The overall viable pregnancy rate (per 100 transfer cycles) for ICSI treatment method has increased from 17.4% in 1996 to 25.9% in 2001 (Table 3).

ICSI pregnancies after transfer of fresh embryos have increased from 7,854 in 2000 to 8,627 in 2001 (Figure 2). The viable pregnancy rate (per 100 oocyte retrieval cycles) has increased from 17.0% in 2000 to 21.3% in 2001 (Table 2, Figure 3). The number of ICSI cycles with frozen embryo transferred has also increased from 4,639 in 2000 to 5,209 in 2001 (Figure 2). The viable pregnancy rate (per 100 transfer cycles) for ICSI frozen embryo transfers has increased from 14.2% in 2000 to 14.7% in 2001 (Table 2, Figure 3).

From 1991 to 2000 there were a total of 11,417 ICSI pregnancies including other microinsemination techniques such as SUZI. There were 10,855 ICSI infants born in this period. In 2000, there were 2,640 ICSI pregnancies, resulting in the birth of 2,548 infants (Tables 20 and 55).

Gamete intrafallopian transfer (GIFT)

The GIFT treatment method commenced in Australia and New Zealand in 1985.

The number of transfer cycles using the GIFT method decreased from 3,757 cycles in 1992 to 341 in 2001 (Figure 2). The decline in the use of GIFT by many IVF units during the last 10 years is likely due to the increased acceptability and success rates of other assisted conception methods. The viable pregnancy rate (per 100 oocyte retrieval cycles) for GIFT was 19.7% in 2001 (Table 2), similar to 20.4% reported in 2000 (Figure 3). The viable pregnancy rate (per 100 transfer cycles) for GIFT varied from 18.6% to 22.4% between 1992 and 2001 (Table 3).

From 1991 to 2000 the GIFT method produced a total of 6,717 pregnancies. There were 6,584 GIFT infants born in this period. In 2000, 235 pregnancies resulted from GIFT treatment and 225 infants were born (Tables 20 and 55).

Assisted hatching

Assisted hatching is one of several interventions applied during IVF treatment in an attempt to boost pregnancy rates (Meniru 2001). It involves the breaching of the zona pellucida (egg shell) prior to embryo transfer. It is used in limited situations and is usually indicated for older women and those with previous treatment failures.

Data for assisted hatching have been collected since 1994. There were 1,136 cycles using embryos by assisted hatching in 2001 (Table 4). The viable pregnancy rate (per 100 transfer cycles) for this technique ranged from a low of 6.4% in 1996 to a high of 16.2% in 2000. In 2001, it was 12.3% (Table 3).

Between 1995 and 2000, 324 assisted hatching pregnancies were reported. As a result of these pregnancies, 282 infants were born. In 2000, there were 159 assisted hatching pregnancies, resulting in 115 births (Table 53). These births resulted in 140 infants, which included 24 sets of multiples.

Blastocyst culture

Blastocyst formation usually occurs by the fifth day following ovulation or oocyte retrieval (Meniru 2001). The Blastocyst culture results in embryos being at a more advanced stage of development when transfer occurs. Most commonly it is used for women with a significant number of fertilised oocytes (i.e. greater than five).

Treatment cycle information on these transfers was first collected in 1998. In 2001 there were 2,181 transfer cycles using blastocyst embryos (Table 4). The viable pregnancy rate (per 100 transfer cycles) for this technique increased from 17.5% in 1998 to 31.4% in 2001 (Table 3).

Between 1996 and 2000 a total of 369 pregnancies using blastocysts were reported with 358 infants delivered. In 2000, there were 173 pregnancies and 125 births from using blastocyst embryos (Table 53). This resulted in 161 infants, which included 38 sets of multiples.

Frozen embryos

Cryopreservation (embryo freezing) technology has extended the scope of assisted conception treatment. Improved technologies have increased the chance of survival of frozen embryos after thawing, thus enabling the treatment cycle to start at the stage of embryo transfer. This reduces the need for repetitive ovarian stimulations for oocyte retrieval in every treatment cycle. It also reduces the risk of severe ovarian hyperstimulation syndrome.

In 2001 there were 10,705 transfer cycles using frozen embryos, a 158.3% increase from 1992 (4,144 frozen embryo transfer cycles). The viable pregnancy rate (per 100 frozen transfer cycles) has steadily improved over the past 10 years. It ranged from 9.8% in 1992 to 15.0% in 2001 (Table 3).

Between 1991 and 2000, there were 10,162 frozen embryo pregnancies delivering 8,895 infants. In 2000 there were 1,729 frozen embryos pregnancies and 1,345 births (Table 53). This resulted in 1,556 infants, including 203 sets of multiples.

Frozen embryos in storage

The total number of embryos in storage continued to rise in 2001. The trend of the number of embryos frozen exceeding the number thawed continued. In 2001, 46,835 embryos were frozen and 31,194 stored frozen embryos were thawed. Of these thawed embryos, 18,777 were used in transfer cycles. As of 31 December, 2001, 38 IVF units had reported 81,627 frozen embryos in storage (Table 19).

Artificial insemination

Artificial insemination is a fertility treatment available from IVF and GIFT units and other medical facilities. Artificial insemination does not involve using assisted conception methods, such as IVF, ICSI or GIFT. Information about artificial insemination in this report is limited to IVF and GIFT units only and does not include data from procedures performed outside an IVF or GIFT unit. Therefore, the use of artificial insemination in Australia and New Zealand cannot be estimated from these data. There is no information available on infants born from artificial insemination pregnancies.

Treatment cycle data from artificial insemination at an IVF unit were first collected in 1998. In 1999 the number of pregnancies by artificial insemination using either partner's sperm or donor's sperm was also collected.

In 2001 a total of 11,393 cycles of artificial insemination were performed in IVF and GIFT units (Table 6). Insemination with partner's sperm accounted for two-thirds (66.5%) of all artificial inseminations. In 2001, the viable pregnancy rate (per 100 treatment cycles) was 7.2% with partner's sperm and 7.7% with donor sperm.

2.3 Variations in pregnancy rates among IVF and GIFT units

Pregnancy rates of different methods of treatments vary within and between individual IVF or GIFT units. Since 1998, pregnancy rates achieved following IVF, ICSI or GIFT treatments have been reported by quartiles. Q1 (quartile 1) includes the IVF or GIFT units with the highest pregnancy rates for that particular method or technique, and Q4 includes those units with the lowest pregnancy rates. There are five different methods of conception reported and each method is mutually exclusive from the others. Tables 7 and 8 present unadjusted pregnancy rate calculations.

In 2001, there were 9–10 units included in each quartile for IVF and ICSI treatment and 5–6 units for GIFT treatment.

The success rate (per 100 oocyte retrieval cycles) of IVF treatment for clinical pregnancies using fresh embryos achieved by Q1 units was 34.4% in 2001 (Table 7) compared with 24.9% in 1998. The success rate of ICSI treatment for clinical pregnancies using fresh embryos achieved by Q1 units was 34.4% in 2001 compared with 27.9% in 1998. The success rate of GIFT treatment for clinical pregnancies using fresh oocytes achieved by Q1 units was 34.4% in 2001 compared with 32.1% in 1998.

The success rate (per 100 embryo transfer cycles) of IVF treatment for clinical pregnancies using thawed embryos achieved by Q1 units was 28.4% in 2001 (Table 8) compared to 23.2% in 1998. The success rate of ICSI treatment for clinical pregnancies using thawed embryos achieved by Q1 units was 26.0% in 2001 compared with 23.4% in 1998.

Quartile reporting of viable pregnancy rates after IVF, ICSI and GIFT is provided in Table 9.

2.4 Other aspects of assisted conception treatment

Information about to couples or women seeking assisted conception treatment is collected by IVF and GIFT units. These include woman's age, and broad cause(s) of infertility.

Cause(s) of infertility

There are many causes of infertility. Data collected in this report were classified as tubal factor, other female factor, male factor, multiple causes (including male, female and / or both) and unexplained. Unexplained infertility is where the cause of infertility was not diagnosed at time of treatment. Where data were not presented at time of collection, cause of infertility was classified as 'not stated'.

With the development of assisted reproductive technologies, the proportions of different causes of infertility in couples or women seeking assisted conception treatment have changed. For example, in 1992, 31.1% of all women treated at the time of oocyte retrieval had tubal factor problems; by 1996, this proportion had declined to 17.7% (Table 12). This change was due to the success of microinsemination (ICSI) technology which enables more couples with male infertility problems to enter the IVF program. In 1992, the cause of infertility in 16.4% of women treated at the time of oocyte retrieval was male factor infertility; by 1996, this proportion had risen to 33.9%.

In 2001 the proportions of classified causes of infertility at the time of oocyte retrieval were tubal factor (12.4%), other female factor (14.4%), male factor (29.7%), multiple causes (23.6%) and unexplained (19.8%) (Table 12). In 2001, the proportions of classified causes at the time of transferring frozen embryos were tubal factor (11.2%), other female factor (13.9%), male factor (29.4%), multiple causes (28.3%) and unexplained (17.3%) (Table 17).

Live-birth pregnancies per 100 viable pregnancies with different causes of infertility in 2000 are detailed in Table 34. In 2000, the live-birth pregnancy rate ranged from 79.7% in women seeking treatment due to male factor infertility to a low of 76.5% in women with tubal factor infertility.

Woman's age

Woman's age is a major factor in conception. The older a woman is the less chance she has of conceiving naturally. The delay in childbearing in Australia has been mirrored by an increasing trend of women aged 35 years or older entering the IVF

program. In 2000, of all pregnant women after assisted conception treatment, more than one woman in nine (11.2%) was 40 years or older and one in three (34.5%) was 35 to 39 years (Table 22).

In 2000 about 72.3% of all women being treated with assisted conception were aged 30–39 years (Table 22). Women seeking treatment were on average 4.6 years older than all women giving birth in Australia in 2000. The average age of women giving birth after assisted conception in 2000 was 33.6 years, compared with 29.0 years for all mothers confined in Australia in 2000 (AIHW National Perinatal Statistics Unit 2003). Women aged 40 years and older accounted for 11.2% of all women with assisted conception pregnancies in 2000, an increase from 4.9% in 1990.

With increasing age in a woman, the quality of oocytes decline, and the oocyte suitability for use in assisted conception decreases. Older women were more likely to use donor oocytes or donor embryos to achieve pregnancy (Figure 4). There were 1,046 women who used either donor oocytes or donor embryos between 1991 and 2000. The median age of women who used donor oocytes or donor embryos was 37.5 years, compared with 32.5 years for those who used their own oocytes.

The likelihood of achieving a live birth after assisted conception decreases as a woman's age advances. Live-birth pregnancies per 100 viable pregnancies by age group are detailed in Table 37. Women aged 40 years and older had the lowest live-birth pregnancy rate of 61.4% in 2000.

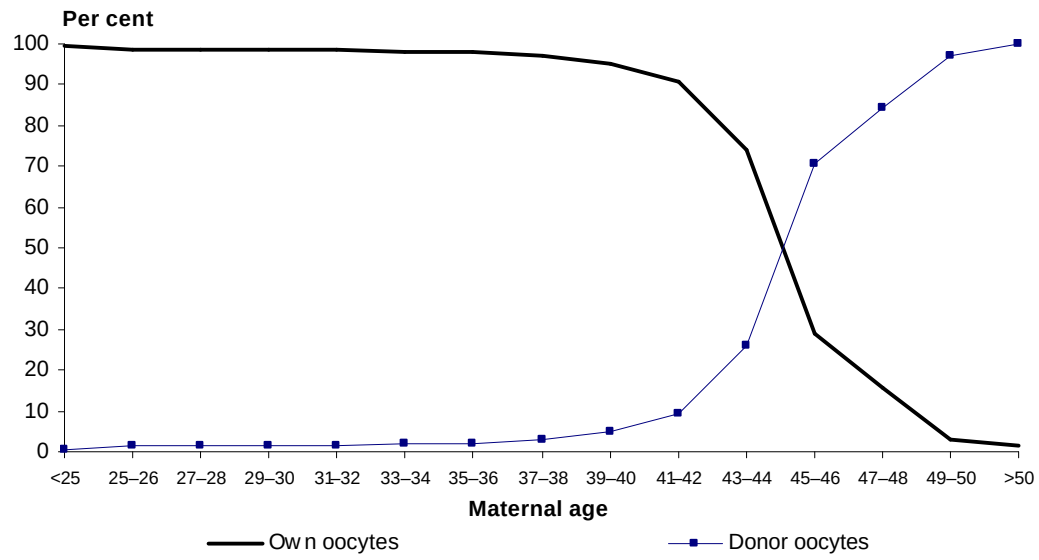


Figure 4: Maternal age and use of donor oocytes/donor embryos, assisted conception pregnancies, 1991–2000

Number of embryos/oocytes transferred

Data pertaining to fresh embryos / oocytes at the time of transfer were first collected in 1991, and data for frozen embryos / oocytes were first collected in 1997. Over the period 1997–2001, there has been an increase in the proportion of assisted conception pregnancies that result from the transfer of two embryos / oocytes ranging from 51.2% in 1997 to 67.9% in 2001; this increase has been paralleled by a decrease of

47.2% in the proportion transferring three or more fresh embryos / oocytes (Table 13). This pattern is also seen with the transfer of frozen embryos / oocytes (Table 18).

In 2001, 84.6% of fresh transfer cycles had one or two embryos / oocytes transferred, and 91.5% of frozen transfer cycles had one or two embryos transferred, compared with 63.8% and 80.6% respectively in 1997 (Tables 13 and 18).

The outcomes of assisted conception pregnancies in 2000 by number of embryos / oocytes transferred are detailed in Table 43. The percentage of live births following transfer of one or two embryos / oocytes was 79.5% and 79.2% respectively. The proportion of live births was lower (=75.0%) in women who had three or more embryos / oocytes transferred (Table 43).

3 Outcomes of assisted conception treatment

There were 5,466 assisted conception pregnancies reported in 2000 (Table 20). Of these pregnancies, 2,591 (47.4%) were IVF pregnancies, 2,640 (48.3%) were ICSI pregnancies and 235 (4.3%) were GIFT pregnancies.

Of the 5,466 assisted conception pregnancies, 78.3% resulted in live births, 0.6% in stillbirths and 21.1% did not progress. Reasons reported were ectopic pregnancies (2.5%), spontaneous abortions (14.7%) and other terminations of pregnancies (3.9%).

3.1 Outcome of pregnancies

Spontaneous abortion and termination of pregnancy

Spontaneous abortion and termination of pregnancy were more likely among women aged 40 years and older (Table 37). In 2000, 9.8% of pregnant women after assisted conception aged under 25 years had a spontaneous abortion or other termination. In contrast, 36.3% of women aged 40 to 44 years and 31.9% of women aged 45 years and older had a spontaneous abortion or other termination.

In 2000, women who had three or more embryos / oocytes transferred had higher occurrences of spontaneous abortions or other terminations (Table 43). Among women who had three embryos / oocytes transferred, 21.6% had spontaneous abortions or other terminations, compared with 30.7% in women who had four embryos / oocytes transferred. For women who had five or more embryos / oocytes transferred, 25.0% had spontaneous abortions in 2000. The proportions of spontaneous abortions or other terminations were lower among women who had either one embryo / oocyte transferred (17.7%) or two embryos / oocytes transferred (17.8%).

Ectopic pregnancy

In 2000, 2.5% of all assisted conception pregnancies were ectopic pregnancies; this proportion essentially unchanged from 1999 (2.2%, Hurst & Lancaster 2001). In 2000, GIFT conceptions resulted in 3.8% ectopic pregnancies, compared with 2.5% for IVF conceptions and 2.2% for ICSI conceptions (Table 49).

Heterotopic pregnancies

Heterotopic pregnancies are those in which there is simultaneous uterine and tubal (ectopic) pregnancy. The uterine pregnancy may either abort or continue to birth. Heterotopic pregnancies are rare.

In 2000 there were six heterotopic pregnancies reported, which was 0.1% of all assisted conception pregnancies (Table 50). Four of the reported heterotopic

pregnancies were terminated and two continued to birth. Among these six heterotopic pregnancies, two were from ICSI conceptions and four from IVF conceptions. There were no GIFT conceptions resulting in heterotopic pregnancies in 2000.

Selective reduction of fetuses

Fourteen women reported a live-birth outcome following successful selective reduction of fetuses in 2000. Of these women, four were from IVF conceptions and ten were from ICSI conceptions.

Selective reduction of fetuses from four to two occurred in one pregnancy (IVF conception); from three to two occurred in three pregnancies (two IVF conceptions and one ICSI conception); and from two to one occurred in ten pregnancies (one IVF conception and nine ICSI conceptions).

The stated causes of reduction were hydrocephalus (one), Turner syndrome (one), trisomy 18 (one), chromosomal abnormality (one), fetal death (one), and dermoid cyst (one). There were no reported causes for reduction in eight pregnancies.

Pregnancy complications

Data were gathered in the following categories: threatened abortion, antepartum haemorrhage, pregnancy-induced hypertension and placenta praevia. Other complications were specified.

In 2000, pregnancy-induced hypertension was reported in 3.9% of all pregnancies. This was the most common complication among the four specified categories. Threatened abortion and placenta praevia were each reported in 1.4% of all pregnancies and antepartum haemorrhage in 0.9% of all pregnancies (Table 31). Other complications were reported in 14.9% (815) pregnancies. The stated other complications for more than 20 cases were gestational diabetes or diabetes in pregnancy (97, 1.8%), breech presentation at delivery (55, 1.0%), premature rupture of membrane (47, 0.9%), intrauterine growth retardation (27, 0.5%) and hyperemesis (22, 0.4%).

In 2000, there were no maternal deaths among assisted conception pregnancies reported to IVF or GIFT units.

Multiple pregnancies

In 2000, 945 (22.1%) assisted conception pregnancies were reported as multiple pregnancies. The proportions of multiple pregnancies for IVF and ICSI conceptions were 21.8% and 21.9% respectively, compared with 28.1% for GIFT conceptions (Table 32).

The likelihood of having a multiple pregnancy is associated with the number of embryos / oocytes transferred (Table 46). There were 902 (21.1%) twin pregnancies and 43 (1.0%) triplet pregnancies in 2000. Most twin pregnancies occurred after the transfer of more than one embryo / oocyte. The proportion of twins following the transfer of two embryos / oocytes was 22.3%, of three embryos / oocytes 25.0%, of four embryos / oocytes 28.6% and of five or more embryos / oocytes 23.8%. Only eight (2.1%) twin pregnancies occurred after transferring one embryo / oocyte. The

proportion of triplet pregnancies per transfer of embryo / oocyte increased with increasing number of embryos / oocytes transferred. For two embryos / oocytes transferred, the proportion of triplets was 0.5%, for three 3.5% and for four 4.1%.

The incidence of twin pregnancies after assisted conception has increased slightly from 17.7% in 1991 to 21.0% in 2000, with the lowest incidence of 17.1% in 1994 (Figure 5). In 2000, the incidence of IVF twin pregnancies was 20.8% of all IVF pregnancies, compared with 21.0% for ICSI twin pregnancies and 24.6% for GIFT twin pregnancies (Table 32).

The incidence of triplet and higher order pregnancy after assisted conception has decreased by 58.3% from 2.4% in 1991 to 1.0% in 2000 (Figure 5). Between 1991 and 2000, GIFT conception had much higher incidence (3.5%) of triplet or higher order pregnancy than IVF conception (1.3%) or ICSI conception (1.2%).

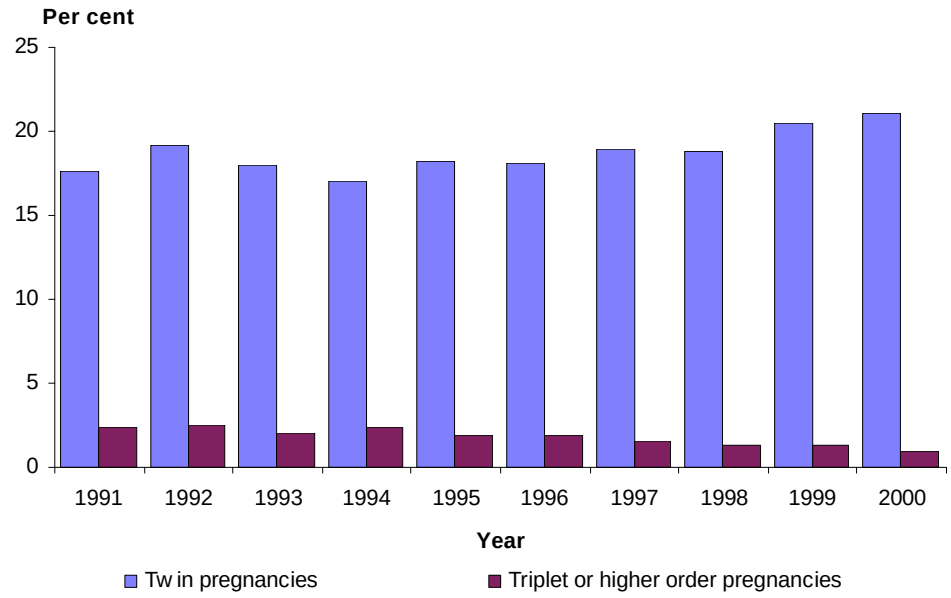


Figure 5: Incidence of twin and triplet or higher order pregnancy, 1991–2000

There were no quadruplet or other higher order pregnancies in 2000.

Women who had assisted conception treatment had a higher proportion of multiple pregnancies (21.8%, Table 52) than that for all Australian mothers in 2000 (1.6%, AIHW National Perinatal Statistics Unit 2003).

Method of delivery

Caesarean rates (caesarean sections per 100 deliveries) were high among assisted conception pregnancies in 2000 (Table 51). Delivery by caesarean section was reported in 46.7% of all deliveries of assisted conception pregnancies. Multiple pregnancies had higher rates of caesarean section, accounting for 68.5% of all deliveries in twin pregnancies and 95.2% in triplet pregnancies. The caesarean rate in women with assisted conception pregnancies was higher than that for all Australian mothers in 2000 (23.3%, AIHW National Perinatal Statistics Unit 2003).

The incidence of caesarean deliveries was higher with increasing plurality, ranging from 40.2% for singleton pregnancies, 68.5% for twin pregnancies and 95.2% for triplet pregnancies (Table 51).

3.2 Outcome of births

This section includes all births of at least 20 weeks gestation.

In 2000, there were 4,285 confinements of women of at least 20 weeks gestation in Australia and New Zealand. Of those 4,285 confinements, 3,901 were in Australia and 378 in New Zealand, an increase of 10.9% and 14.2% respectively from 1999. The 4,285 confinements notified by IVF and GIFT units in Australia and New Zealand resulted in a total of 5,275 live births and fetal deaths (Table 54). There were 99 live births for every 100 assisted conception births in Australia and New Zealand in 2000 compared with 99.3 per 100 total births in Australia in 2000 (AIHW National Perinatal Statistics Unit 2003). Between 1991 and 2000 the fetal death rate (fetal deaths per 100 relevant births) varied from 2.7% in 1994 to 1.0% in 2000 (Figure 6). There were 4,801 infants born in Australia in 2000, accounting for 1.9% of all births (AIHW National Perinatal Statistics Unit 2003), 472 births in New Zealand and two births where place of birth was not stated.

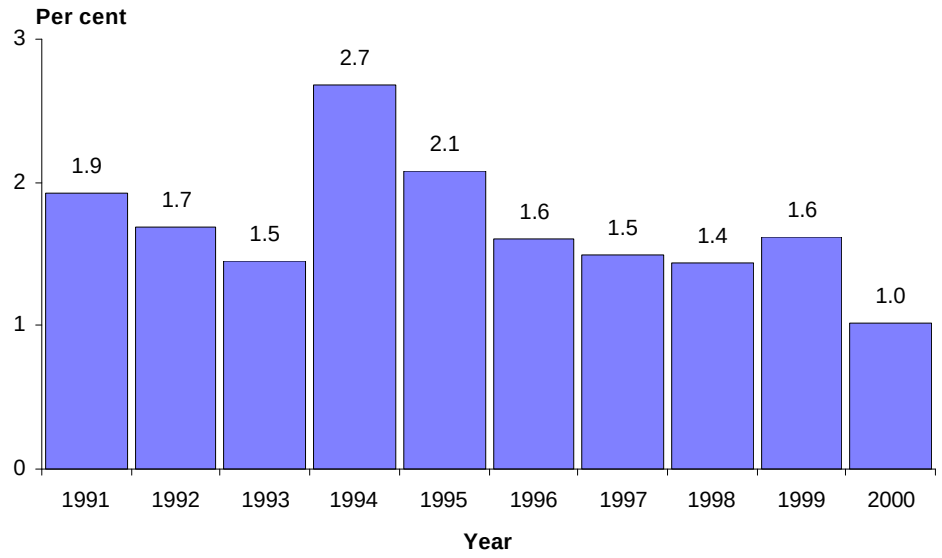


Figure 6: Trend of fetal death rate after assisted conception, 1991–2000

Of all assisted conception births in 2000, there were 3,341 (63.3%) singletons, 1,805 (34.2%) twins, and 129 (2.4%) triplets (Table 55). There was no quadruplet or other higher order multiple births.

Sex of infants

The sex ratio of infants born after assisted conception was 105.0 male infants per 100 females in 2000 (Table 55). ICSI conception had the lowest sex ratio of 95.2 male infants per 100 females. Higher sex ratios were reported for GIFT conception (112.3) and for IVF conception (115.3).

Infant's gestational age

Preterm birth before 37 weeks gestation accounts for a high proportion of perinatal deaths. Prematurity is associated with many neonatal problems that cause significant morbidity in newborn infants and may sometimes be associated with long-term disabilities (NHMRC 1996). Preterm births were classified according to the criteria of WHO into groups at 32–36 weeks, 28–31 weeks, and 20–27 weeks.

In 2000, slightly more than two-thirds (67.4%) of assisted conception infants reached at least 37 weeks gestation (Table 56) compared with 92.1% of all Australian babies (AIHW National Perinatal Statistics Unit 2003).

In 2000, the incidence of all subcategories of preterm birth among assisted conception infants was higher. They were 25.1% at 32–36 weeks, 4.4% at 28–31 weeks and 3.1% at 20–27 weeks (Table 56), compared with 6.2% at 32–36 weeks, 0.8% at 28–31 weeks and 0.8% at 20–27 weeks of all Australian babies in 2000 (AIHW National Perinatal Statistics Unit 2003). Preterm births of less than 37 weeks gestation occurred in 33.3% of all IVF infants, 31.5% of all ICSI infants and 37.8% of all GIFT infants (Figure 7, Table 56).

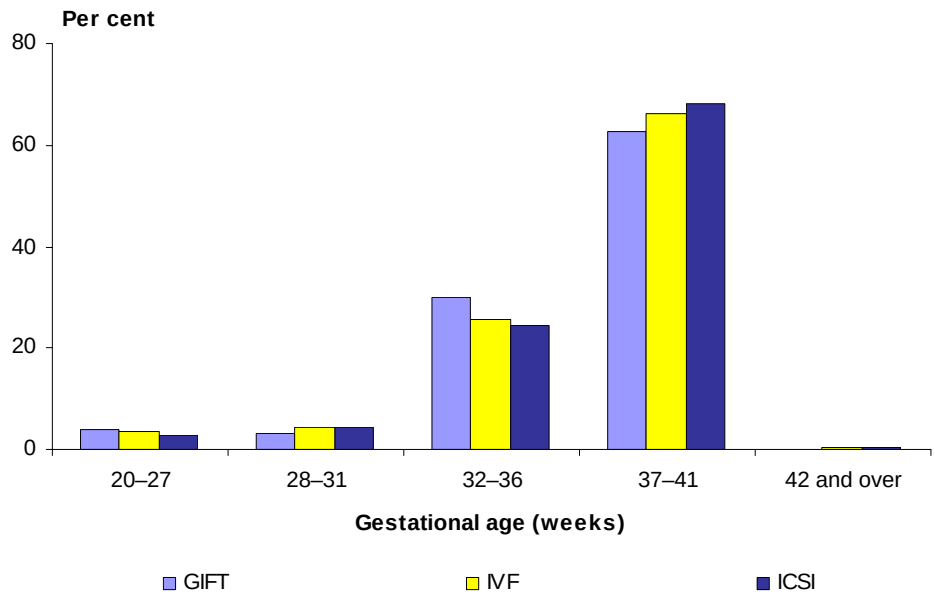


Figure 7: Distribution of gestational age, assisted conception births, 2000

The high proportion of preterm births can be partly attributed to the high proportion of multiple births among assisted conception infants. Preterm births occurred mostly in multiple births in 2000 (Table 61). The incidence of twin births at less than 37 weeks was 63.0% and the incidence of triplet births at less than 37 weeks was 95.3%.

Birthweight

Infant's birthweight is a key indicator of health status. Infants born with a birthweight less than 2,500 g are categorised as low birthweight, less than 1,500 g as very low birthweight and those less than 1,000 g as extremely low birthweight.

In 2000, GIFT conception had the highest incidence (32.3%) of low birthweight infants, followed by IVF conception (27.2%) and ICSI conception (25.0%) (Table 57).

The mean birthweight for infants born after assisted conception was 2,916 g (Table 57), 448 g (13.3%) less than the mean birthweight of 3,364 g for all Australian births in 2000 (AIHW National Perinatal Statistics Unit 2003). The mean birthweight for live births was 2,935 g for assisted conception births (Table 60), compared with 3,377 g for all live births in Australia in 2000 (AIHW National Perinatal Statistics Unit 2003). There were 1,383 (26.4%) assisted conception infants with low birthweight (less than 2,500 g) in 2000 compared with 6.8% for of all births in Australia (AIHW National Perinatal Statistics Unit 2003).

The high incidence of multiple births after assisted conception accounted for much of this difference. In 2000, 947 (22.1%) multiple pregnancies resulted in 1,934 (36.7%) assisted conception infants. The mean birthweights for singleton, twin and triplet assisted conception births were 3,273 g, 2,354 g and 1,531 g respectively (Table 62).

Perinatal mortality

Perinatal deaths include fetal deaths (stillbirths) of at least 20 weeks gestation or 400 g and neonatal deaths of liveborn infants occurring within 28 days of birth.

In 2000, there were 109 reported perinatal deaths among assisted conception births with a perinatal death rate of 20.7 per 1,000 relevant births. The perinatal death rate comprised a fetal death rate of 10.2 deaths per 1,000 relevant births and a neonatal death rate of 10.4 deaths per 1,000 relevant births (Table 54).

Perinatal death rates are higher for multiple than for singleton births (Table 54). There were 62 perinatal deaths in twins (34.3 per 1,000 relevant births) and 8 in triplets (62.0 per 1,000 relevant births), compared with 39 in singletons (11.7 per 1,000 relevant births) in 2000.

The perinatal death rate of assisted conception births between 1991 and 2000 has declined from 31.5 deaths per 1,000 relevant births in 1991 to 20.7 deaths per 1,000 relevant births in 2000. This represents a decrease of more than one-third (34.3%) during the 10-year period (Table 67).

The fetal death rate has declined by 47.2% between 1991 and 2000 from 19.3 to 10.2 deaths per 1,000 relevant births. The neonatal death rate has also declined in this period from 13.6 to 10.4 deaths per 1,000 relevant births, a decrease of 23.5% (Table 67).

However, the perinatal death rate after assisted conception remains markedly higher than for all Australian births (Table 67). In 2000, the perinatal death rate for assisted conception births was 2.5 times Australia's rate (8.3 deaths per 1,000 relevant births, ABS 2001). Factors likely contributing to the higher perinatal death rate after assisted conception include higher incidence of multiple births, higher proportions of preterm births and low birthweight infants, and underlying causes of infertility.

Tabulation data

Assisted conception pregnancy rates

Table 1: Assisted conception pregnancies, 1992-2001

	Year of treatment									
Stage of treatment	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Cycles with oocyte retrieval	12,144	12,050	13,247	13,556	14,337	15,071	15,728	16,461	16,982	18,092
Cycles with embryo/gamete transfer	14,607	15,359	16,966	18,337	20,052	21,330	22,829	24,534	24,915	26,556
Clinical pregnancies	2,560	2,742	3,139	3,253	3,603	3,985	4,350	4,844	5,285	6,513
Viable pregnancies	1,894	2,052	2,341	2,609	2,887	3,243	3,529	3,892	4,469	5,458
Clinical pregnancies per 100 embryo transfer cycles	17.5	17.9	18.5	17.7	18.0	18.7	19.1	19.7	21.2	24.5
Viable pregnancies per 100 embryo/gamete transfer cycles	13.0	13.4	13.8	14.2	14.4	15.2	15.5	15.9	17.9	20.6

Table 2: Assisted conception pregnancies, all methods, 2001

Stage of treatment	**IVF fresh embryos**	**IVF frozen embryos**	**ICSI fresh embryos**	**ICSI frozen embryos**	**GIFT**	**[(a)]All methods**
Treatment cycles commenced	9,308	-	10,802	-	398	-
Cycles with oocyte retrieval	8,027	-	9,709	-	356	18,092
Cycles with embryo / gametes transfer	6,883	4,455	8,627	5,209	341	26,556
Clinical pregnancies	2,074	883	2,528	929	99	6,513
Viable pregnancies	1,673	690	2,066	764	70	5,458
Clinical pregnancies per 100 oocyte retrieval cycles	25.8	-	26.0	-	27.8	-
Viable pregnancies per 100 oocyte retrieval cycles	20.8	-	21.3	-	19.7	-
Clinical pregnancies per 100 embryo transfer cycles	30.1	19.8	29.3	17.8	29.0	24.5
Viable pregnancies per 100 embryo transfer cycles	24.3	15.5	23.9	14.7	20.5	20.6

(a) All methods include donor oocytes/donor embryos transfer cycles.

Table 3: Viable pregnancy rates, assisted conception, 1992–2001

Treatment method or technique	Year of treatment									
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
	Viable pregnancies per 100 transfer cycles									
IVF method	9.4	10.2	11.4	12.4	12.8	14.3	14.7	15.7	18.2	20.8
ICSI method	-	-	16.4	17.5	17.4	19.1	20.3	20.3	22.6	25.9
GIFT method	20.8	20.9	21.7	21.2	22.4	20.7	21.3	18.6	21.9	20.5
Assisted hatching	-	-	9.6	7.0	6.4	6.5	11.5	10.8	16.2	12.3
Blastocyst culture	-	-	-	-	-	-	17.5	27.7	30.4	31.4
Frozen embryos	9.8	9.6	11.3	11.2	11.1	11.8	12.1	12.0	14.2	15.0
Artificial insemination	-	-	-	-	-	-	-	9.6	9.3	7.4

Table 4: Assisted conception pregnancies by using special techniques in embryo development and sperm collection, 2001

Stage of treatment	Assisted hatching	Blastocyst culture	Special techniques of sperm collection
Cycles with embryo transfer	1,136	2,181	1,162
Clinical pregnancies	203	809	349
Viable pregnancies	140	685	304
Clinical pregnancies per 100 embryo transfer cycles	17.9	37.1	30.0
Viable pregnancies per 100 embryo transfer cycles	12.3	31.4	26.2

Note: Special techniques of sperm collection include TESE, MESA, PESA, etc.

Table 5: Assisted conception pregnancies by using donor oocytes, donor embryos and donor sperm, 2001

Stage of treatment	Donor oocytes only[(a)]	Donor embryos[(b)]	Donor sperm only
Cycles with embryo transfer	893	146	583
Clinical pregnancies	226	34	171
Viable pregnancies	176	19	130
Clinical pregnancies per 100 embryo transfer cycles	25.3	23.3	29.3
Viable pregnancies per 100 embryo transfer cycles	19.7	13.0	22.3

(a) Donor oocytes used in IVF, ICSI or GIFT as fresh embryos or frozen embryos for transfer.
(b) Donor embryos include cycles with donor embryos and those with both donor sperm and donor oocytes.

Table 6: Pregnancies from artificial insemination, 2001

Stage of treatment	Husband's sperm	Donor sperm	All artificial inseminations
Cycles of insemination	7,580	3,813	11,393
Clinical pregnancies	827	478	1,305
Viable pregnancies	547	292	839
Clinical pregnancies per 100 cycles	10.9	12.5	11.5
Viable pregnancies per 100 cycles	7.2	7.7	7.4

Note: Not all units were able to provide all data in this table.

Table 7: Assisted conception pregnancies after transfer of fresh embryos or oocytes, pregnancy rates for grouped IVF units, 2001

Stage of treatment	Q1	Q2	Q3	Q4	Total
IVF treatment cycles					
IVF units (n)	10	10	10	10	40
Treatment cycles commenced	2,414	3,292	1,543	2,232	9,481
Cycles with oocyte retrieval	2,097	2,824	1,375	1,907	8,203
Cycles with embryo transfer	1,843	2,466	1,184	1,566	7,059
Clinical pregnancies	722	788	296	327	2,133
Viable pregnancies	615	648	224	233	1,720
Clinical pregnancies per 100 oocyte retrieval cycles	34.4	27.9	21.5	17.1	26.0
Viable pregnancies per 100 oocyte retrieval cycles	29.3	22.9	16.3	12.2	21.0
ICSI treatment cycles					
IVF units (n)	10	10	10	9	39
Treatment cycles commenced	3,051	3,551	3,619	775	10,996
Cycles with oocyte retrieval	2,830	3,104	3,232	738	9,904
Cycles with embryo transfer	2,526	2,824	2,817	659	8,826
Clinical pregnancies	974	835	650	130	2,589
Viable pregnancies	839	724	505	45	2,113
Clinical pregnancies per 100 oocyte retrieval cycles	34.4	26.9	20.1	17.6	26.1
Viable pregnancies per 100 oocyte retrieval cycles	29.6	23.3	15.6	6.1	21.3
GIFT treatment cycles					
IVF units (n)	5	6	5	5	21
Treatment cycles commenced	96	242	23	5	366
Cycles with oocyte retrieval	96	208	18	4	326
Cycles with embryo transfer	92	199	18	4	313
Clinical pregnancies	33	58	-	-	91
Viable pregnancies	32	38	-	-	70
Clinical pregnancies per 100 oocyte retrieval cycles	34.4	27.9	-	-	27.9
Viable pregnancies per 100 oocyte retrieval cycles	33.3	18.3	-	-	21.5

Note: This table represents the success rates in each type of treatments of each IVF or GIFT unit ranked from the most successful to the least successful in quartiles. Q1 (quartile 1) includes the most successful quarter of all IVF or GIFT units, and Q4 (quartile 4) includes the least successful quarter of all IVF or GIFT units.

Table 8: Assisted conception pregnancies after transfer of thawed embryos, pregnancy rates for grouped IVF units, 2001

Stage of treatment	Q1	Q2	Q3	Q4	Total
IVF treatment cycles					
IVF units (n)	10	10	10	10	40
Cycles with embryo transfer	1,354	1,741	1,242	508	4,845
Clinical pregnancies	385	324	200	60	969
Viable pregnancies	298	265	153	38	754
Clinical pregnancies per 100 embryo transfer cycles	28.4	18.6	16.1	11.8	20.0
Viable pregnancies per 100 embryo transfer cycles	22.0	15.2	12.3	7.5	15.6
ICSI treatment cycles					
IVF units (n)	10	10	10	10	40
Cycles with embryo transfer	1,242	1,701	2,121	406	5,470
Clinical pregnancies	323	312	305	38	978
Viable pregnancies	285	258	239	16	798
Clinical pregnancies per 100 embryo transfer cycles	26.0	18.3	14.4	9.4	17.9
Viable pregnancies per 100 embryo transfer cycles	22.9	15.2	11.3	3.9	14.6

Note: This table represents the success rates in each type of treatments of each IVF unit ranked from the most successful to the least successful in quartiles. Q1 (quartile 1) includes the most successful quarter of all IVF units, and Q4 (quartile 4) includes the least successful quarter of all IVF units.

Table 9: Viable pregnancy rates after IVF, ICSI and GIFT, grouped IVF units, 2001

		Viable pregnancy rates				
Method of conception	**Units (n)**	**Q1**	**Q2**	**Q3**	**Q4**	**Total**
IVF fresh	40	25.5 – 45.0	21.1 – 25.0	13.8 – 21.0	0.0 – 13.8	21.0
IVF frozen	40	17.8 – 30.0	13.8 – 17.6	10.3 – 13.4	0.0 – 10.3	15.6
ICSI fresh	39	25.9 – 40.7	21.1 – 25.3	12.5 – 17.9	0.0 – 12.2	21.3
ICSI frozen	40	19.6 – 50.0	13.6 – 18.9	8.5 – 13.4	0.0 – 6.7	14.6
GIFT	21	31.0 – 100.0	10.0 – 25.0	0.0 – 0.0	0.0 – 0.0	21.5

Note: Viable pregnancy rates are expressed per 100 oocyte retrieval cycles for IVF fresh, ICSI fresh and GIFT cycles and per 100 embryo transfers for IVF frozen and ICSI frozen embryo transfers

Variations in assisted conception, treatment year 2001

Table 10: Oocyte retrieval cycles for IVF, ICSI and GIFT, maternal age, cause of infertility and drugs used to stimulate ovulation, 2001

Characteristic	Oocyte retrieval cycles attempted					
	IVF		ICSI		GIFT	
	Number	Per cent	Number	Per cent	Number	Per cent
Maternal age (at start of treatment)						
<20	1	0.0	6	0.1	1	0.2
20–24	99	1.2	181	1.9	4	1.0
25–29	937	11.7	1,254	12.8	26	6.2
30–34	2,615	32.6	3,196	32.7	114	27.2
35–39	2,816	35.1	3,298	33.7	155	37.0
40–44	1,419	17.7	1,683	17.2	109	26.0
45+	136	1.7	159	1.6	10	2.4
Not stated	1		-		1	
All ages	**8,024**	**100.0**	**9,777**	**100.0**	**420**	**100.0**
Cause(s) of infertility						
Tubal only	1,808	22.5	436	4.5	18	4.5
Other female only	1,912	23.8	619	6.3	90	22.7
Male factors only	500	6.2	4,846	49.6	63	15.9
Multiple causes	1,451	18.1	2,733	28.0	108	27.3
Unexplained	2,351	29.3	1,143	11.7	117	29.5
Not stated	2		-		24	
All causes	**8,024**	**100.0**	**9,777**	**100.0**	**420**	**100.0**
Ovarian stimulation						
GnRH analogues + other	7,630	95.7	9,201	94.8	351	89.3
No GnRH analogues						
— clomiphene + any other	179	2.2	350	3.6	11	2.8
— other drugs	70	0.9	72	0.7	29	7.4
— natural cycles	91	1.1	82	0.8	2	0.5
Not stated	54		72		27	
Total	**8,024**	**100.0**	**9,777**	**100.0**	**420**	**100.0**

Table 11: Distribution of women's ages, at time of oocyte retrieval, 1992–2001

Age group (years)	Year of treatment									
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
	Per cent									
<20	0.0	0.0	-	0.0	0.1	0.0	0.0	0.1	0.0	0.0
20–24	1.9	2.1	1.9	1.8	2.0	1.9	1.5	1.7	1.4	1.6
25–29	19.4	18.0	16.5	15.9	16.3	16.3	15.5	14.1	13.5	12.2
30–34	39.3	38.5	37.5	36.0	35.8	34.1	34.5	33.9	33.5	32.5
35–39	30.1	30.4	31.1	31.9	31.5	32.6	33.8	34.2	33.6	34.4
40–44	9.3	11.0	13.0	14.4	14.3	13.9	13.4	14.9	16.7	17.6
45 and over	-	-	-	-	-	1.2	1.3	1.3	1.3	1.7
All ages	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table 12: Proportions of causes of infertility at time of oocyte retrieval, 1992–2001

Cause of infertility	Year of treatment									
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
	Per cent									
Tubal only	31.1	27.0	26.5	20.4	17.7	16.2	15.5	14.9	13.4	12.4
Other female only	15.3	17.3	16.9	17.1	9.6	10.9	12.0	13.2	13.3	14.4
Male factors only	16.4	22.7	22.6	25.1	33.9	33.0	30.5	32.1	30.7	29.7
Multiple causes	16.2	12.8	14.8	16.2	19.4	19.5	23.5	20.3	21.0	23.6
Unexplained	21.0	20.2	19.2	21.2	19.3	20.4	18.4	19.4	21.6	19.8
All causes	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table 13: Proportions of number of embryos/oocytes transferred, 1992–2001

Number of embryos/ oocytes transferred	Year of treatment									
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
	Per cent									
One	9.3	11.1	13.1	11.8	12.5	12.6	12.0	12.9	14.4	16.7
Two	29.8	33.5	38.1	43.2	49.5	51.2	50.5	59.9	63.6	67.9
Three	55.7	51.9	45.4	42.0	34.5	32.9	33.8	24.7	20.2	13.9
Four	5.1	3.3	3.2	2.6	3.2	3.0	3.1	2.2	1.7	1.2
Five	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.1
Six or more	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.1	0.1	0.2
All transfer cycles	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note: Data exclude frozen embryos transferred 1997 onwards.

Table 14: Embryo or oocyte transfer cycles for IVF, ICSI and GIFT, number of embryos or oocytes transferred, 2001

Number of embryos / oocytes transferred	Fresh embryos or oocytes transfer cycles					
	IVF		ICSI		GIFT	
	Number	Per cent	Number	Per cent	Number	Per cent
One	1,220	17.7	1,431	16.5	17	4.2
Two	4,806	69.8	5,881	67.7	157	38.9
Three	813	11.8	1,260	14.5	147	36.4
Four	42	0.6	104	1.2	49	12.1
Five	2	0.0	6	0.1	6	1.5
Six or more	-	-	9	0.1	28	6.9
Not stated	-		1		-	
All transfer cycles	**6,883**	**100.0**	**8,692**	**100.0**	**404**	**100.0**

Note: Data exclude frozen embryos transferred and donor oocytes.

Table 15: Embryo transfer cycles after cryopreservation, maternal age, cause of infertility and number of embryos transferred, 2001

Characteristic	Frozen embryo transfer cycles					
	IVF		ICSI		Donor oocytes	
	Number	Per cent	Number	Per cent	Number	Per cent
Maternal age (at start of treatment)						
<20	-	-	1	0.0	1	0.2
20–24	46	1.0	124	2.4	16	2.5
25–29	560	12.6	808	15.5	42	6.5
30–34	1,718	38.6	2,078	39.9	88	13.6
35–39	1,604	36.0	1,639	31.5	144	22.3
40–44	482	10.8	545	10.5	196	30.3
45+	42	0.9	16	0.3	159	24.6
Not stated	1		1		2	
All ages	**4,453**	**100.0**	**5,212**	**100.0**	**648**	**100.0**
Cause(s) of infertility						
Tubal only	830	20.7	157	3.3	20	3.3
Other female only	927	23.1	297	6.2	286	47.5
Male factors only	283	7.1	2,306	48.0	50	8.3
Multiple causes	991	24.7	1,503	31.3	177	29.4
Unexplained	983	24.5	543	11.3	69	11.5
Not stated	439		406		46	
All causes	**4,453**	**100.0**	**5,212**	**100.0**	**648**	**100.0**
Number of embryos transferred						
One	1,150	25.9	1,384	26.5	160	24.7
Two	2,896	65.2	3,418	65.5	413	63.7
Three	375	8.4	410	7.9	70	10.8
Four	20	0.5	10	0.2	5	0.8
Five	-	-	-	-	-	-
Six or more	1	0.0	-	-	-	-
Not stated	11		10		-	
All transfer cycles	**4,453**	**100.0**	**5,212**	**100.0**	**648**	**100.0**

Table 16: Distribution of women's ages, at time of transferring frozen embryos, 1997–2001

Age group (years)	Year of treatment				
	1997	1998	1999	2000	2001
	Per cent				
<20	0.1	0.1	0.0	0.0	0.0
20–24	1.8	2.7	1.6	1.6	1.8
25–29	17.5	18.4	16.4	14.8	14.2
30–34	38.0	37.3	37.2	38.1	39.3
35–39	31.8	32.6	33.8	33.7	33.6
40–44	10.3	8.2	10.4	10.8	10.6
45 and over	0.6	0.8	0.6	1.0	0.6
All ages	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table 17: Proportions of causes of infertility at time of transferring frozen embryos, 1997–2001

Cause of infertility	Year of treatment				
	1997	1998	1999	2000	2001
	Per cent				
Tubal only	17.4	15.0	15.1	14.4	11.2
Other female only	10.2	11.2	11.9	12.4	13.9
Male factors only	33.0	28.3	29.8	31.9	29.4
Multiple causes	20.4	28.9	22.7	21.4	28.3
Unexplained	19.0	16.7	20.5	19.9	17.3
All causes	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table 18: Proportions of number of frozen embryos transferred, 1997–2001

Number of frozen embryos transferred	Year of treatment				
	1997	1998	1999	2000	2001
	Per cent				
One	21.3	16.9	12.9	23.1	26.2
Two	59.3	60.0	59.9	66.0	65.3
Three	18.5	22.1	24.7	10.4	8.1
Four	0.9	0.8	2.2	0.5	0.3
Five	0.0	0.2	0.1	0.0	-
Six or more	-	-	0.1	0.0	0.0
All transfer cycles	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table 19: Embryo freezing, embryo thawing and storage of frozen embryos, 1994-2001

Status of frozen embryos	Year of treatment							
	1994	1995	1996	1997	1998	1999	2000	2001
Embryo freezing								
No. patients having embryos frozen	n.a.	n.a.	n.a.	n.a.	n.a.	7,834	7,955	8,746
No. patient cycles having embryos frozen	4,404	4,912	6,213	6,391	7,462	8,669	8,819	9,545
No. embryos that were frozen	19,563	22,499	26,550	32,327	37,057	39,682	41,413	46,835
Embryo thawing								
No. patients having thawed embryos transferred	n.a.	n.a.	n.a.	n.a.	n.a.	6,771	6,927	7,663
No. patient cycles having thawed embryos transferred	4,105	4,872	5,495	5,719	8,159	9,995	9,748	10,658
No. embryos thawed	14,375	17,313	19,027	22,611	25,521	28,286	29,371	31,194
No. embryos transferred after thawing	10,581	12,515	13,430	15,959	18,085	18,907	18,362	18,777
Frozen embryo storage								
Frozen embryos in storage on 31 December	22,280	30,475	41,662	46,322	56,136	65,518	71,176	81,627

Outcome of pregnancies, methods of assisted conception, treatment year 2000

Table 20: Outcome of pregnancies, 2000

Pregnancy outcome	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
	Number				Per cent			
Stillbirth	20	12	1	33	0.8	0.5	0.4	0.6
Live birth [(a)]	2,017	2,066	170	4,253	78.3	78.8	72.6	78.3
Ectopic pregnancy	66	59	9	134	2.6	2.3	3.8	2.5
Spontaneous abortion	368	382	47	797	14.3	14.6	20.1	14.7
Termination of pregnancy	104	103	7	214	4.0	3.9	3.0	3.9
Not stated	16	18	1	35				
All outcomes	**2,591**	**2,640**	**235**	**5,466**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Multiple pregnancies with both stillbirths and live births are included only in the live-birth category.

Table 21: Place of parental residences, 2000

Place of residence	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
	Number				Per cent			
New South Wales	975	912	28	1,915	37.6	34.7	12.0	35.1
Victoria	564	616	28	1,208	21.8	23.4	12.0	22.1
Queensland	328	393	173	894	12.7	14.9	73.9	16.4
Western Australia	268	182	3	453	10.3	6.9	1.3	8.3
South Australia	142	187	1	330	5.5	7.1	0.4	6.0
Tasmania	28	93	-	121	1.1	3.5	-	2.2
Australian Capital Territory	23	12	-	35	0.9	0.5	-	0.6
Northern Territory	26	21	1	48	1.0	0.8	0.4	0.9
New Zealand	236	215	-	451	9.1	8.2	-	8.3
Not stated/other countries	1	9	1	11				
All regions	**2,591**	**2,640**	**235**	**5,466**	**100.0**	**100.0**	**100.0**	**100.0**

Table 22: Maternal age groups, 2000

Age group (years)	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
	Number				Per cent			
20–24	27	45	-	72	1.0	1.7	-	1.3
25–29	343	453	29	825	13.3	17.2	12.4	15.2
30–34	969	1,001	88	2,058	37.5	38.1	37.8	37.8
35–39	915	868	94	1,877	35.4	33.0	40.3	34.5
40–44	287	232	22	541	11.1	8.8	9.4	9.9
45 and over	42	28	-	70	1.6	1.1	-	1.3
Not stated	8	13	2	23				
All ages	**2,591**	**2,640**	**235**	**5,466**	**100.0**	**100.0**	**100.0**	**100.0**

Table 23: Paternal age groups, 2000

Age group (years)	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
	Number				Per cent			
Less than 20	-	1	-	1	-	0.0	-	0.0
20–24	13	15	-	28	0.5	0.6	-	0.5
25–29	241	210	17	468	9.5	8.1	7.6	8.7
30–34	745	719	63	1,527	29.2	27.6	28.1	28.4
35–39	901	817	90	1,808	35.3	31.3	40.2	33.6
40–44	436	469	38	943	17.1	18.0	17.0	17.5
45 and over	213	377	16	606	8.4	14.5	7.1	11.3
Not stated/single female	42	32	11	85				
All ages	**2,591**	**2,640**	**235**	**5,466**	**100.0**	**100.0**	**100.0**	**100.0**

Table 24: Previous pregnancies of women, 2000

Number of previous pregnancies	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
	Number				Per cent			
None	1,214	1,485	108	2,807	46.9	56.3	46.0	51.4
One	688	692	79	1,459	26.6	26.2	33.6	26.7
Two	355	282	28	665	13.7	10.7	11.9	12.2
Three	186	102	7	295	7.2	3.9	3.0	5.4
Four or more	148	79	13	240	5.7	3.0	5.5	4.4
All pregnancies	**2,591**	**2,640**	**235**	**5,466**	**100.0**	**100.0**	**100.0**	**100.0**

Table 25: Duration of infertilities, 2000

Duration of infertility (years)	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
	Number				Per cent			
Less than 2	335	409	23	767	13.1	15.8	10.0	14.2
2–3	1,124	1,104	118	2,346	43.9	42.5	51.1	43.6
4–5	584	583	46	1,213	22.8	22.5	19.9	22.5
6–7	284	241	23	548	11.1	9.3	10.0	10.2
8–9	119	139	15	273	4.6	5.4	6.5	5.1
10 or more	114	119	6	239	4.5	4.6	2.6	4.4
Not stated/Not applicable	31	45	4	80				
All pregnancies	**2,591**	**2,640**	**235**	**5,466**	**100.0**	**100.0**	**100.0**	**100.0**

Table 26: Causes of infertility, 2000

Causes of infertility	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
	Number				Per cent			
Tubal	530	82	4	616	20.5	3.1	1.7	11.3
Male factor	231	1,398	38	1,667	8.9	53.0	16.2	30.5
Endometriosis	289	60	35	384	11.2	2.3	15.0	7.0
Other stated causes	390	223	31	644	15.1	8.4	13.2	11.8
Multiple causes	585	739	31	1,355	22.6	28.0	13.2	24.8
Unexplained infertility	566	138	95	799	21.8	5.2	40.6	14.6
Not stated	-	-	1	1				
All causes	**2,591**	**2,640**	**235**	**5,466**	**100.0**	**100.0**	**100.0**	**100.0**

Table 27: Assisted conception treatment cycles in which conception occurred, 2000

Treatment cycle	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
	Number				Per cent			
1	1,501	1,202	120	2,823	58.1	45.6	51.5	51.8
2	520	639	55	1,214	20.1	24.3	23.6	22.3
3	238	345	23	606	9.2	13.1	9.9	11.1
4	132	194	18	344	5.1	7.4	7.7	6.3
5 or more	192	254	17	463	7.4	9.6	7.3	8.5
Not stated	8	6	2	16				
All cycles	**2,591**	**2,640**	**235**	**5,466**	**100.0**	**100.0**	**100.0**	**100.0**

Table 28: Number of oocytes collected by laparoscopy or ultrasound guidance, 2000

Number of oocytes collected	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
	Number				Per cent			
1–2	72	72	17	161	2.9	2.8	7.3	3.0
3–4	200	151	34	385	8.0	5.8	14.7	7.2
5–6	281	243	41	565	11.2	9.4	17.7	10.6
7–8	345	315	43	703	13.7	12.2	18.5	13.2
9–10	333	356	32	721	13.2	13.7	13.8	13.5
11–12	293	315	31	639	11.7	12.2	13.4	12.0
13–14	258	285	15	558	10.3	11.0	6.5	10.5
15 or more	732	855	19	1,606	29.1	33.0	8.2	30.1
Not stated / Donor	77	48	3	128				
All pregnancies	**2,591**	**2,640**	**235**	**5,466**	**100.0**	**100.0**	**100.0**	**100.0**
Mean number of oocytes	12.0	12.6	8.2	12.1				

Table 29: Drugs used to stimulate ovulation, 2000

Drugs	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
	Number				Per cent			
Natural cycles	158	100	6	264	6.1	3.8	2.6	4.8
Clomiphene and hMG or FSH	41	59	14	114	1.6	2.2	6.0	2.1
hMG or FSH	24	18	-	42	0.9	0.7	-	0.8
GnRH analogues and hMG or FSH	2,349	2,434	215	4,998	90.7	92.2	91.5	91.4
Other	19	29	-	48	0.7	1.1	-	0.9
All drugs	**2,591**	**2,640**	**235**	**5,466**	**100.0**	**100.0**	**100.0**	**100.0**

Table 30: Number of embryos or oocytes transferred, 2000

Number of embryos / oocytes transferred	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
	Number				Per cent			
One	267	204	6	477	10.3	7.7	2.6	8.7
Two	1,910	1,944	113	3,967	73.8	73.7	48.1	72.7
Three	368	445	97	910	14.2	16.9	41.3	16.7
Four	28	30	17	75	1.1	1.1	7.2	1.4
Five or more	15	13	2	30	0.6	0.5	0.9	0.5
Not stated	3	4	-	7				
All pregnancies	**2,591**	**2,640**	**235**	**5,466**	**100.0**	**100.0**	**100.0**	**100.0**
Mean number	2.1	2.2	2.6	2.2				

Table 31: Reported obstetric complications, 2000

Pregnancy complications	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
	Number				Per cent			
None	1,982	2,071	183	4,236	76.5	78.4	77.9	77.5
Threatened abortion	36	30	8	74	1.4	1.1	3.4	1.4
Antepartum haemorrhage	26	22	2	50	1.0	0.8	0.9	0.9
Pregnancy-induced hypertension	105	104	6	215	4.1	3.9	2.6	3.9
Placenta praevia	44	30	2	76	1.7	1.1	0.9	1.4
Other complications	398	383	34	815	15.4	14.5	14.5	14.9
All pregnancies	**2,591**	**2,640**	**235**	**5,466**	**100.0**	**100.0**	**100.0**	**100.0**

Table 32: Plurality of pregnancies, at least 20 weeks gestation, 2000

Plurality	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
	Number				Per cent			
Singletons	1,594	1,626	123	3,343	78.2	78.1	71.9	77.9
Twins	424	438	42	904	20.8	21.0	24.6	21.1
Triplets	20	17	6	43	1.0	0.8	3.5	1.0
Not stated / not applicable	553	559	64	1,176				
All pregnancies	**2,591**	**2,640**	**235**	**5,466**	**100.0**	**100.0**	**100.0**	**100.0**

Table 33: Duration of pregnancies by plurality, at least 20 weeks gestation, 2000

Duration of pregnancy (weeks)	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
	Number				Per cent			
Singleton								
20–27	31	21	2	54	2.0	1.3	1.6	1.6
28–31	22	16	-	38	1.4	1.0	-	1.1
32–36	163	180	18	361	10.3	11.2	14.8	10.9
37 or more	1,362	1,394	102	2,858	86.3	86.5	83.6	86.3
20–36	216	217	20	453	13.7	13.5	16.4	13.7
Not stated	15	13	1	29				
All singleton pregnancies	**1,593**	**1,624**	**123**	**3,340**	**100.0**	**100.0**	**100.0**	**100.0**
Multiple								
20–27	26	23	3	52	5.9	5.1	6.3	5.5
28–31	39	44	3	86	8.8	9.7	6.3	9.1
32–36	231	216	24	471	52.1	47.7	50.0	49.9
37 or more	147	170	18	335	33.2	37.5	37.5	35.5
20–36	296	283	30	609	66.8	62.5	62.5	64.5
Not stated	1	-	-	1				
All multiple pregnancies	**444**	**453**	**48**	**945**	**100.0**	**100.0**	**100.0**	**100.0**
20–27	62	46	6	114	3.1	2.2	3.5	2.7
28–31	61	61	3	125	3.0	2.9	1.8	2.9
32–36	394	396	42	832	19.4	19.1	24.6	19.5
37 or more	1,510	1,566	120	3,196	74.5	75.7	70.2	74.9
20–36	517	503	51	1,071	25.5	24.3	29.8	25.1
Not stated	69	68	5	142				
All pregnancies[(a)]	**2,096**	**2,137**	**176**	**4,409**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Includes 124 pregnancies with 'not stated' or 'not applicable' plurality.

Outcome of pregnancies, causes of infertility, treatment year 2000

Table 34: Outcome of pregnancies by causes of infertility, 2000

Outcome of pregnancy	Causes of infertility						
	Tubal	Male	Endometriosis	Other specified	Multiple	Unexplained	All causes[b]
				Number			
Stillbirth	6	5	2	4	8	8	33
Live birth[a]	468	1,319	303	493	1,050	619	4,253
Ectopic pregnancy	22	34	9	19	36	14	134
Spontaneous abortion	91	236	56	97	197	120	797
Termination of pregnancy	25	61	12	27	55	34	214
Not stated	4	12	2	4	9	4	35
All outcomes	**616**	**1,667**	**384**	**644**	**1,355**	**799**	**5,466**
				Per cent			
Stillbirth	1.0	0.3	0.5	0.6	0.6	1.0	0.6
Live birth[a]	76.5	79.7	79.3	77.0	78.0	77.9	78.3
Ectopic pregnancy	3.6	2.1	2.4	3.0	2.7	1.8	2.5
Spontaneous abortion	14.9	14.3	14.7	15.2	14.6	15.1	14.7
Termination of pregnancy	4.1	3.7	3.1	4.2	4.1	4.3	3.9
All outcomes	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Multiple pregnancies with both stillbirths and live births are included only in the live-birth category.
(b) Includes 1 pregnancy with 'not stated' causes of infertility.

Table 35: Maternal ages by causes of infertility, 2000

Age group (years)	Causes of infertility						
	Tubal	Male	Endometriosis	Other specified	Multiple	Unexplained	All causes[a]
				Number			
20–24	4	35	4	11	15	3	72
25–29	73	304	57	98	226	67	825
30–34	221	633	156	225	525	298	2,058
35–39	235	554	134	204	439	311	1,877
40–44	73	124	31	79	129	105	541
45 and over	6	11	1	24	14	14	70
Not stated	4	6	1	3	7	1	23
All ages	**616**	**1,667**	**384**	**644**	**1,355**	**799**	**5,466**
				Per cent			
20–24	0.7	2.1	1.0	1.7	1.1	0.4	1.3
25–29	11.9	18.3	14.9	15.3	16.8	8.4	15.2
30–34	36.1	38.1	40.7	35.1	38.9	37.3	37.8
35–39	38.4	33.4	35.0	31.8	32.6	39.0	34.5
40–44	11.9	7.5	8.1	12.3	9.6	13.2	9.9
45 and over	1.0	0.7	0.3	3.7	1.0	1.8	1.3
All ages	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Includes 1 pregnancy with 'not stated' causes of infertility.

Table 36: Duration of pregnancies by causes of infertility, at least 20 weeks gestation, 2000

Duration of pregnancy (weeks)	Causes of infertility						
	Tubal	Male	Endometriosis	Other specified	Multiple	Unexplained	All causes[(a)]
				Number			
20–27	19	21	9	23	26	16	114
28–31	20	37	4	15	36	13	125
32–36	106	242	56	97	220	110	832
37 or more	329	1,018	233	360	775	481	3,196
Not stated	11	48	12	18	30	23	142
All pregnancies	**485**	**1,366**	**314**	**513**	**1,087**	**643**	**4,409**
				Per cent			
20–28	4.0	1.6	3.0	4.6	2.5	2.6	2.7
28–31	4.2	2.8	1.3	3.0	3.4	2.1	2.9
32–36	22.4	18.4	18.5	19.6	20.8	17.7	19.5
37 or more	69.4	77.2	77.2	72.7	73.3	77.6	74.9
All pregnancies	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Includes 1 pregnancy with 'not stated' causes of infertility.

Outcome of pregnancies, maternal ages, treatment year 2000

Table 37: Outcome of pregnancies by maternal ages, 2000

Outcome of pregnancy	Maternal age (years)						
	Less than 25	25–29	30–34	35–39	40–44	45 and over	All ages[b]
				Number			
Stillbirth	1	5	11	13	3	-	33
Live birth[a]	63	660	1,691	1,446	327	46	4,253
Ectopic pregnancy	-	16	50	54	13	1	134
Spontaneous abortion	5	115	237	278	142	20	797
Termination of pregnancy	2	21	58	76	53	2	214
Not stated	1	8	11	10	3	1	35
All outcomes	**72**	**825**	**2,058**	**1,877**	**541**	**70**	**5,466**
				Per cent			
Stillbirth	1.4	0.6	0.5	0.7	0.6	-	0.6
Live birth[a]	88.7	80.8	82.6	77.5	60.8	66.7	78.3
Ectopic pregnancy	-	2.0	2.4	2.9	2.4	1.4	2.5
Spontaneous abortion	7.0	14.1	11.6	14.9	26.4	29.0	14.7
Termination of pregnancy	2.8	2.6	2.8	4.1	9.9	2.9	3.9
All outcomes	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Multiple pregnancies with both stillbirths and live births are included only in the live-birth category.
(b) Includes 23 pregnancies with 'not stated' maternal age.

Table 38: Causes of infertility by maternal ages, 2000

Causes of infertility	Maternal age (years)						
	Less than 25	25–29	30–34	35–39	40–44	45 and over	All ages[b]
				Number			
Tubal	4	73	221	235	73	6	616
Male factor	35	304	633	554	124	11	1667
Endometriosis	4	57	156	134	31	1	384
Other specified	11	98	225	204	79	24	644
Multiple	15	226	525	439	129	14	1355
Unexplained	3	67	298	311	105	14	799
All causes[a]	**72**	**825**	**2058**	**1877**	**541**	**70**	**5466**
				Per cent			
Tubal	5.6	8.8	10.7	12.5	13.5	8.6	11.3
Male factor	48.6	36.8	30.8	29.5	22.9	15.7	30.5
Endometriosis	5.6	6.9	7.6	7.1	5.7	1.4	7.0
Other specified	15.3	11.9	10.9	10.9	14.6	34.3	11.8
Multiple	20.8	27.4	25.5	23.4	23.8	20.0	24.8
Unexplained	4.2	8.1	14.5	16.6	19.4	20.0	14.6
All causes	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Includes 1 pregnancy with 'not stated' causes of infertility.
(b) Includes 23 pregnancies with 'not stated' maternal age.

Table 39: Number of embryos or oocytes transferred by maternal ages, 2000

Number of embryos / oocytes transferred	Maternal age (years)						
	Less than 25	25–29	30–34	35–39	40–44	45 and over	All ages[(a)]
				Number			
One	2	55	197	157	57	7	477
Two	63	690	1,608	1,272	279	44	3,967
Three	7	73	229	405	169	17	910
Four	-	1	12	32	29	1	75
Five or more	-	5	10	8	6	1	30
Not stated	-	1	2	3	1	-	7
All pregnancies	**72**	**825**	**2,058**	**1,877**	**541**	**70**	**5,466**
				Per cent			
One	2.8	6.7	9.6	8.4	10.6	10.0	8.7
Two	87.5	83.7	78.2	67.9	51.7	62.9	72.7
Three	9.7	8.9	11.1	21.6	31.3	24.3	16.7
Four	-	0.1	0.6	1.7	5.4	1.4	1.4
Five or more	-	0.6	0.5	0.4	1.1	1.4	0.5
All pregnancies	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Mean number	2.1	2.1	2.1	2.2	2.4	2.3	2.2

(a) Includes 23 pregnancies with 'not stated' maternal age.

Table 40: Duration of pregnancies by maternal ages, at least 20 weeks gestation, 2000

Duration of pregnancy (weeks)	Maternal age (years)						
	Less than 25	25–29	30–34	35–39	40–44	45 and over	All ages[(a)]
				Number			
20–27	3	22	31	47	10	1	114
28–31	3	21	55	37	6	2	125
32–36	11	146	350	257	49	15	832
37 or more	47	477	1,251	1,112	266	28	3,196
Not stated	2	23	53	46	17	-	142
All pregnancies	**66**	**689**	**1,740**	**1,499**	**348**	**46**	**4,409**
20–36	17	189	436	341	65	18	1,071
				Per cent			
20–27	4.7	3.3	1.8	3.2	3.0	2.2	2.7
28–31	4.7	3.2	3.3	2.5	1.8	4.3	2.9
32–36	17.2	21.9	20.7	17.7	14.8	32.6	19.5
37 or more	73.4	71.6	74.2	76.5	80.4	60.9	74.9
All pregnancies	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
20–36	26.6	27.5	25.1	22.8	18.8	40.9	24.3

(a) Includes 21 pregnancies with 'not stated' maternal age.

Table 41: Methods of delivery by maternal ages, at least 20 weeks gestation, 2000

	Maternal age (years)						
Method of delivery	**Less than 25**	**25–29**	**30–34**	**35–39**	**40–44**	**45 and over**	**All ages[(a)]**
				Number			
Vaginal	40	364	945	775	133	9	2,276
Caesarean section	24	300	747	681	193	37	1,991
Not stated / not applicable	2	25	48	43	22	-	142
All methods	**66**	**689**	**1,740**	**1,499**	**348**	**46**	**4,409**
				Per cent			
Vaginal	62.5	54.8	55.9	53.2	40.8	19.6	53.3
Caesarean section	37.5	45.2	44.1	46.8	59.2	80.4	46.7
All methods	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Includes 21 pregnancies with 'not stated' maternal age.

Table 42: Plurality of pregnancies by maternal ages, at least 20 weeks gestation, 2000

	Maternal age (years)						
Plurality	**Less than 25**	**25–29**	**30–34**	**35–39**	**40–44**	**45 and over**	**All ages[(a)]**
				Number			
Singleton	50	493	1,307	1,157	286	31	3,340
Twin	12	170	371	292	41	13	902
Triplet	2	4	21	11	2	2	43
Not stated / not applicable	2	22	41	39	19	-	124
All pregnancies	**66**	**689**	**1,740**	**1,499**	**348**	**46**	**4,409**
				Per cent			
Singleton	78.1	73.9	76.9	79.2	86.9	67.4	77.9
Twin	18.8	25.5	21.8	20.0	12.5	28.3	21.1
Triplet	3.1	0.6	1.2	0.8	0.6	4.3	1.0
All pregnancies	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Includes 21 pregnancies with 'not stated' maternal age.

Outcome of pregnancies, number of embryos or oocytes transferred, treatment year 2000

Table 43: Outcome of pregnancies by number of embryos or oocytes transferred, 2000

Outcome of pregnancy	Number of embryos or oocytes transferred					
	1	2	3	4	5+	All pregnancies[(b)]
				Number		
Stillbirth	2	23	8	-	-	33
Live birth[(a)]	377	3,124	678	49	21	4,253
Ectopic pregnancy	11	96	23	3	-	134
Spontaneous abortion	66	549	156	18	7	797
Termination of pregnancy	18	152	39	5	-	214
Not stated	3	23	6	-	2	35
All outcomes	**477**	**3,967**	**910**	**75**	**30**	**5,466**
				Per cent		
Stillbirth	0.4	0.6	0.9	-	-	0.6
Live birth[(a)]	79.5	79.2	75.0	65.3	75.0	78.3
Ectopic pregnancy	2.3	2.4	2.5	4.0	-	2.5
Spontaneous abortion	13.9	13.9	17.3	24.0	25.0	14.7
Termination of pregnancy	3.8	3.9	4.3	6.7	-	3.9
All outcomes	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Multiple pregnancies with both stillbirths and live births are included only in the live-birth category.
(b) Includes 7 pregnancies with 'not stated' number of embryos or oocytes transferred.

Table 44: Causes of infertility by number of embryos or oocytes transferred, 2000

Causes of infertility	Number of embryos or oocytes transferred					
	1	2	3	4	5+	All pregnancies[(b)]
				Number		
Tubal	61	432	116	4	2	616
Male factor	139	1,246	255	16	10	1,667
Endometriosis	30	288	52	10	3	384
Other specified	67	445	117	7	6	644
Multiple	121	981	226	23	4	1,355
Unexplained	59	575	143	15	5	799
All pregnancies[(a)]	**477**	**3,967**	**910**	**75**	**30**	**5,466**
				Per cent		
Tubal	12.8	10.9	12.8	5.3	6.7	11.3
Male factor	29.1	31.4	28.1	21.3	33.3	30.5
Endometriosis	6.3	7.3	5.7	13.3	10.0	7.0
Other specified	14.0	11.2	12.9	9.3	20.0	11.8
Multiple	25.4	24.7	24.9	30.7	13.3	24.8
Unexplained	12.4	14.5	15.7	20.0	16.7	14.6
All pregnancies	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Includes 1 pregnancy with 'not stated' cause of infertility.
(b) Includes 7 pregnancies with 'not stated' number of embryos or oocytes transferred.

Table 45: Gestational ages by number of embryos or oocytes transferred, at least 20 weeks gestation, 2000

	Number of embryos or oocytes transferred					
Gestational age (weeks)	**1**	**2**	**3**	**4**	**5+**	**All pregnancies[(a)]**
				Number		
20–27	5	80	24	4	1	114
28–31	5	90	28	1	-	125
32–36	48	618	137	22	7	832
37 or more	317	2,351	493	22	10	3,196
20–36	58	788	189	27	8	1,071
Not stated	15	98	20	2	6	142
All pregnancies	**390**	**3,237**	**702**	**51**	**24**	**4,409**
				Per cent		
20–27	1.3	2.5	3.5	8.2	5.6	2.7
28–31	1.3	2.9	4.1	2.0	-	2.9
32–36	12.8	19.7	20.1	44.9	38.9	19.5
37 or more	84.5	74.9	72.3	44.9	55.6	74.9
20–36	15.5	25.1	27.7	55.1	44.4	25.1
All pregnancies	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Includes 5 pregnancies with 'not stated' number of embryos or oocytes transferred.

Table 46: Plurality of pregnancies by number of embryos or oocytes transferred, at least 20 weeks gestation, 2000

	Number of embryos or oocytes transferred					
Plurality	**1**	**2**	**3**	**4**	**5+**	**All pregnancies[(a)]**
				Number		
Singleton	370	2,428	490	33	16	3,340
Twin	8	703	171	14	5	902
Triplet	-	17	24	2	-	43
Not stated / not applicable	12	89	17	2	3	124
All pregnancies	**390**	**3,237**	**702**	**51**	**24**	**4,409**
				Per cent		
Singleton	97.9	77.1	71.5	67.3	76.2	77.9
Twin	2.1	22.3	25.0	28.6	23.8	21.1
Triplet	-	0.5	3.5	4.1	-	1.0
All pregnancies	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Includes 5 pregnancies with 'not stated' number of embryos or oocytes transferred.

Outcome of pregnancies, other characteristics, treatment year 2000

Table 47: Women hospitalised for ovarian hyperstimulation syndrome (OHSS) by number of oocytes collected, 2000

Outcome of pregnancy	Number of oocytes collected [(a)]								
	1–2	3–4	5–6	7–8	9–10	11–12	13–14	15+	All
	Number								
No hospitalisation	157	379	555	688	711	621	536	1533	5302
Hospitalised	3	3	6	13	6	13	16	51	113
Not stated	1	3	4	2	4	5	6	22	51
All pregnancies	**161**	**385**	**565**	**703**	**721**	**639**	**558**	**1606**	**5466**
	Per cent								
No hospitalisation	98.125	99.215	98.93	98.146	99.163	97.95	97.101	96.78	97.9132
Hospitalised	1.875	0.7853	1.0695	1.8545	0.8368	2.0505	2.8986	3.2197	2.086796
All pregnancies	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

(a) Includes 128 pregnancies with 'not stated' number of oocytes collected.

Table 48: Outcome of pregnancies by using donor gametes, donor embryos or frozen embryos, 2000

Outcome of pregnancy	Donor sperm	Donor oocytes	Donor embryos	Frozen embryos	Donor sperm	Donor oocytes	Donor embryos	Frozen embryos
	Number				Per cent			
Stillbirth	1	-	-	7	0.5	-	-	0.4
Live birth [(a)]	167	174	16	1,337	78.8	76.3	59.3	78.1
Ectopic pregnancy	1	4	-	35	0.5	1.8	-	2.0
Spontaneous abortion	34	42	8	269	16.0	18.4	29.6	15.7
Termination of pregnancy	9	8	3	64	4.2	3.5	11.1	3.7
Not stated	3	1	1	18				
All outcomes	**215**	**229**	**28**	**1,730**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Multiple pregnancies with both stillbirths and live births are included only in the live-birth category.

Table 49: Ectopic pregnancies by methods of assisted conception, 2000

Outcome of pregnancy	IVF	ICSI	GIFT	All assisted conceptions
Ectopic pregnancies	66	59	9	134
Clinical pregnancies	2,591	2,640	235	5,466
% ectopic pregnancies	2.5	2.2	3.8	2.5
Total abortions and births	2,525	2,581	226	5,332
Ectopic pregnancy ratio[(a)]	1:38.3	1:43.7	1:25.1	1:39.8

(a) Ratio of ectopic pregnancies: total abortions and births.

Table 50: Heterotopic pregnancies, 1979–2000

Outcome of pregnancy	1979–97	1998	1999	2000
		Number		
Heterotopic- abortion	104	8	4	4
Heterotopic- birth	64	2	3	2
All heterotopic pregnancies	**168**	**10**	**7**	**6**
Clinical pregnancies	31,173	4,460	4,952	5,466
		Per cent		
Heterotopic- abortion	0.3	0.2	0.1	0.1
Heterotopic- birth	0.2	0.0	0.1	0.0
All heterotopic pregnancies	**0.5**	**0.2**	**0.1**	**0.1**

Table 51: Methods of delivery for singleton and multiple pregnancies, at least 20 weeks gestation, 2000

	Method of delivery				
Plurality	Vaginal		Caesarean section		All methods[(a)]
	Number	Per cent	Number	Per cent	Number
Singleton	1,991	59.8	1,337	40.2	3,340
Twin	283	31.5	614	68.5	902
Triplet	2	4.8	40	95.2	43
All pregnancies	**2,276**	**53.3**	**1,991**	**46.7**	**4,285**

(a) Includes 18 pregnancies in which the method of delivery was not stated.

Table 52: Place of parental residences for singleton and multiple pregnancies, at least 20 weeks gestation, 2000

Plurality	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia	New Zealand
					Number					
Singleton	1,141	797	499	269	212	77	21	33	3,049	288
Twin	337	176	144	75	50	20	7	4	813	86
Triplet	10	6	11	7	3	1	1	-	39	4
All pregnancies	**1,488**	**979**	**654**	**351**	**265**	**98**	**29**	**37**	**3,901**	**378**
					Per cent					
Singleton	76.7	81.4	76.3	76.6	80.0	78.6	72.4	89.2	78.2	76.2
Twin	22.6	18.0	22.0	21.4	18.9	20.4	24.1	10.8	20.8	22.8
Triplet	0.7	0.6	1.7	2.0	1.1	1.0	3.4	-	1.0	1.1
All pregnancies	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note: there were 6 pregnancies in which places of parental residence were not stated.

Table 53: Pregnancies resulting in using different techniques, 2000

Technique	All pregnancies	All births	Singleton	Multiple	Multiple birth rate per 100 relevant births
		Number			
Assisted hatching	159	115	91	24	20.9
Blastocyst culture	173	125	87	38	30.4
Frozen embryos	1,729	1,345	1,142	203	15.1

Outcome of births, treatment year 2000

Data in this section are all births resulting from assisted conception treatment, at least 20 weeks gestation or 400 g birthweight.

Table 54: Outcome of births, singleton and multiple births, 2000

Outcome	Singleton	Twin	Triplet	All births
Live births[(a)]	3,322	1,774	125	5,221
Stillbirths	19	31	4	54
All births	**3,341**	**1,805**	**129**	**5,275**
Neonatal deaths	20	31	4	55
Perinatal deaths	39	62	8	109
Stillbirths per 1,000 births	5.7	17.2	31.0	10.2
Neonatal deaths per 1,000 births	6.0	17.2	31.0	10.4
Perinatal deaths per 1,000 births	11.7	34.3	62.0	20.7

(a) Live births include births for which birth status was not stated.

Table 55: Sex of infants by singleton and multiple births, methods of assisted conception, 2000

Plurality	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
	Number				Per cent			
Male								
Singleton	867	796	67	1,730	64.7	64.1	56.3	64.1
Twins	443	421	45	909	33.1	33.9	37.8	33.7
Triplets	29	24	7	60	2.2	1.9	5.9	2.2
All males	**1,339**	**1,241**	**119**	**2,699**	**100.0**	**100.0**	**100.0**	**100.0**
	Number				Per cent			
Female								
Singleton	724	827	56	1,607	62.4	63.4	52.8	62.5
Twins	406	450	39	895	35.0	34.5	36.8	34.8
Triplets	31	27	11	69	2.7	2.1	10.4	2.7
All female	**1,161**	**1,304**	**106**	**2,571**	**100.0**	**100.0**	**100.0**	**100.0**
	Number				Per cent			
Singleton	1,593	1,625	123	3,341	63.7	63.8	54.7	63.3
Twins	849	872	84	1,805	33.9	34.2	37.3	34.2
Triplets	60	51	18	129	2.4	2.0	8.0	2.4
All births	**2,502**	**2,548**	**225**	**5,275**	**100.0**	**100.0**	**100.0**	**100.0**
	Sex ratio (M:F)							
Singleton	119.8	96.3	119.6	107.7				
Twins	109.1	93.6	115.4	101.6				
Triplets	93.5	88.9	63.6	87.0				
All births	**115.3**	**95.2**	**112.3**	**105.0**				

Note: Infant's sex was not stated for 5 births in 2000.

Table 56: Gestational age of infants, methods of assisted conception, 2000

Gestational age (weeks)	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
	Number				Per cent			
20–27	85	69	9	163	3.4	2.7	4.0	3.1
28–31	108	114	7	229	4.3	4.5	3.1	4.4
32–36	634	615	69	1,318	25.5	24.3	30.7	25.1
37 or more	1,660	1,736	140	3,536	66.7	68.5	62.2	67.4
20–36	827	798	85	1,710	33.3	31.5	37.8	32.6
Not stated	15	14	-	29				
All births	**2,502**	**2,548**	**225**	**5,275**	**100.0**	**100.0**	**100.0**	**100.0**

Table 57: Birthweight of infants, methods of assisted conception, 2000

Birthweight (g)	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
	Number				Per cent			
Less than 500	22	10	2	34	0.9	0.4	0.9	0.6
500–999	59	50	7	116	2.4	2.0	3.1	2.2
1000–1499	78	83	5	166	3.1	3.3	2.2	3.2
1500–1999	166	150	16	332	6.7	5.9	7.2	6.3
2000–2499	352	341	42	735	14.1	13.5	18.8	14.0
2500–2999	520	574	60	1,154	20.9	22.7	26.9	22.0
3000–3499	693	688	52	1,433	27.8	27.2	23.3	27.3
3500–3999	445	477	22	944	17.9	18.8	9.9	18.0
4000 and over	155	158	17	330	6.2	6.2	7.6	6.3
Less than 2500	677	634	72	1,383	27.2	25.0	32.3	26.4
Not stated	12	17	2	31				
All births	**2,502**	**2,548**	**225**	**5,275**	**100.0**	**100.0**	**100.0**	**100.0**
Mean birthweight (g)	2,903	2,940	2,801	2,916				

Table 58: Reported congenital malformations in singleton and multiple births, methods of assisted conception, 2000

	IVF	ICSI	GIFT	All	IVF	ICSI	GIFT	All
Congenital malformations	Number				Per cent (to all births)			
Singleton	60	64	1	125	2.4	2.5	0.4	2.4
Multiple	39	38	3	80	1.6	1.5	1.3	1.5
All births (congenital malformations)	99	102	4	205	4.0	4.0	1.8	3.9
All births	**2,502**	**2,548**	**225**	**5,275**				

Table 59: Gestational age of infants, live births and stillbirths, 2000

Gestational age (weeks)	Live birth	Stillbirth	All births[(a)]	Live birth	Stillbirth	All births[(a)]
		Number			Per cent	
20–27	125	38	163	2.4	73.1	3.1
28–31	223	6	229	4.3	11.5	4.4
32–36	1,316	2	1,318	25.3	3.8	25.1
37 or more	3,529	6	3,536	68.0	11.5	67.4
20–36	1,664	46	1,710	31.9	85.2	32.4
Not stated	24	2	29			
All births[(a)]	**5,217**	**54**	**5,275**	**100.0**	**100.0**	**100.0**

(a) Includes 4 infants with 'not stated' outcome.

Table 60: Birthweight of infants, live births and stillbirths, 2000

Birthweight (g)	Live birth	Stillbirth	All births[(a)]	Live birth	Stillbirth	All births[(a)]
		Number			Per cent	
Less than 500	8	26	34	0.2	59.1	0.6
500–999	103	13	116	2.0	29.5	2.2
1000–1499	165	1	166	3.2	2.3	3.2
1500–1999	331	1	332	6.4	2.3	6.3
2000–2499	734	1	735	14.1	2.3	14.0
2500–2999	1,153	-	1,154	22.2	-	22.0
3000–3499	1,432	1	1,433	27.5	2.3	27.3
3500–3999	943	1	944	18.1	2.3	18.0
4000 and over	330	-	330	6.3	-	6.3
Less than 2500	1,341	42	1,383	25.8	95.5	26.4
Not stated	18	10	31			
All births	**5,217**	**54**	**5,275**	**100.0**	**100.0**	**100.0**
Mean birthweight (g)	2,935	686	2,916			

(a) Includes 4 infants with 'not stated' outcome.

Table 61: Gestational age of infants, singleton and multiple births, 2000

Gestational age (weeks)	Singleton	Twin	Triplet	All births	Singleton	Twin	Triplet	All births
		Number				Per cent		
20–27	54	90	19	163	1.6	5.0	14.7	3.1
28–31	38	138	53	229	1.1	7.7	41.1	4.4
32–36	360	907	51	1,318	10.9	50.3	39.5	25.1
37 or more	2,863	667	6	3,536	86.4	37.0	4.7	67.4
20–36	452	1,135	123	1,710	13.6	63.0	95.3	32.6
Not stated	26	3	-	29				
All births	**3,341**	**1,805**	**129**	**5,275**	**113.6**	**100.0**	**100.0**	**100.0**

Table 62: Birthweight of infants, singleton and multiple births, 2000

Birthweight (g)	Singleton	Twin	Triplet	All births	Singleton	Twin	Triplet	All births
	Number				Per cent			
Less than 500	11	20	3	34	0.3	1.1	2.3	0.6
500–999	29	68	19	116	0.9	3.8	14.7	2.2
1000–1499	28	98	40	166	0.8	5.5	31.0	3.2
1500–1999	58	232	42	332	1.7	13.0	32.6	6.3
2000–2499	180	537	18	735	5.4	30.0	14.0	14.0
2500–2999	549	598	7	1,154	16.5	33.4	5.4	22.0
3000–3499	1,222	211	-	1,433	36.8	11.8	-	27.3
3500–3999	921	23	-	944	27.7	1.3	-	18.0
4000 and over	327	3	-	330	9.8	0.2	-	6.3
Less than 2500	306	955	122	1,383	9.2	53.4	94.6	26.4
Not stated	16	15	-	31				
All births	**3,341**	**1,805**	**129**	**5,275**	**100.0**	**100.0**	**100.0**	**100.0**
Mean birthweight (g)	3,273	2,354	1,531	2,916				

Table 63: Perinatal deaths by methods of assisted conception, 2000

Method	All births[(a)]	Fetal deaths	Neonatal deaths	Perinatal deaths	Fetal deaths	Neonatal deaths	Perinatal deaths
		Number			Per 1,000 births		
IVF	2,502	34	27	61	13.6	10.8	24.4
ICSI	2,548	17	25	42	6.7	9.8	16.5
GIFT	225	3	3	6	13.3	13.3	26.7
All births	**5,275**	**54**	**55**	**109**	**10.2**	**10.4**	**20.7**

(a) includes infants with 'not stated' birth status.

Table 64: Perinatal deaths by maternal ages, 2000

Age group (years)	All births[(a)]	Fetal deaths	Neonatal deaths	Perinatal deaths	Fetal deaths	Neonatal deaths	Perinatal deaths
		Number			Per 1,000 births		
20–24	80	1	3	4	12.5	37.5	50.0
25–29	845	9	10	19	10.7	11.8	22.5
30–34	2,114	14	15	29	6.6	7.1	13.7
35–39	1,774	27	26	53	15.2	14.7	29.9
40–44	374	3	-	3	8.0	-	8.0
45 and over	63	-	1	1	-	15.9	15.9
Not stated	25	-	-	-			
All births	**5,275**	**54**	**55**	**109**	**10.2**	**10.4**	**20.7**

(a) includes infants with 'not stated' birth status.

Table 65: Perinatal deaths by gestational ages, 2000

Gestational age (weeks)	All births[(a)]	Fetal deaths	Neonatal deaths	Perinatal deaths	Fetal deaths	Neonatal deaths	Perinatal deaths
			Number			Per 1,000 births	
20–27	163	38	40	78	233.1	245.4	478.5
28–31	229	6	5	11	26.2	21.8	48.0
32–36	1,318	2	5	7	1.5	3.8	5.3
37 or more	3,536	6	5	11	1.7	1.4	3.1
Not stated	29	2	-	2			
All births	**5,275**	**54**	**55**	**109**	**10.2**	**10.4**	**20.7**

(a) Includes infants with 'not stated' birth status.

Table 66: Perinatal deaths by birthweights, 2000

Year	All births[(a)]	Fetal deaths	Neonatal deaths	Perinatal deaths	Fetal deaths	Neonatal deaths	Perinatal deaths
			Number			Per 1,000 births	
1979–1990	8,700	247	156	403	28.4	17.9	46.3
1991	2,127	41	29	70	19.3	13.6	32.9
1992	2,367	40	32	72	16.9	13.5	30.4
1993	2,543	37	36	73	14.5	14.2	28.7
1994	2,880	77	46	123	26.7	16.0	42.7
1995	3,122	65	33	98	20.8	10.6	31.4
1996	3,431	57	42	99	16.6	12.2	28.9
1997	3,811	60	29	89	15.7	7.6	23.4
1998	4,179	60	35	95	14.4	8.4	22.7
1999	4,718	77	36	113	16.3	7.6	24.0
2000	5,275	54	55	109	10.2	10.4	20.7
1979–2000	**43,153**	**815**	**529**	**1,344**	**18.9**	**12.3**	**31.1**

(a) Includes infants with 'not stated' birth status.

Table 67: Perinatal deaths, assisted conception versus Australia, 1991–2000

	Assisted conception			Australia*		
Year	Fetal deaths	Neonatal deaths	Perinatal deaths	Fetal deaths	Neonatal deaths	Perinatal deaths
			Rate per 1,000 relevant births			
1991	19.3	13.6	32.9	6.4	4.3	10.6
1992	16.9	13.5	30.4	6.4	4.3	10.7
1993	14.5	14.2	28.7	5.5	3.7	9.2
1994	26.7	16.0	42.7	5.4	3.7	9.1
1995	20.8	10.6	31.4	5.9	3.5	9.4
1996	16.6	12.2	28.9	6.5	3.5	10.0
1997	15.7	7.6	23.4	6.0	3.2	9.2
1998	14.4	8.4	22.7	5.3	3.0	8.3
1999	16.3	7.6	24.0	5.1	3.4	8.5
2000	10.2	10.4	20.7	5.2	3.1	8.3

* *Source*: ABS 2001. Causes of deaths, Australia, 2000.

Assisted conception confinements and births, at least 20 weeks gestation or 400 games birthweight, Australia, 2000

Data extracted from assisted conception database for all births, at least 20 weeks gestation, in 2000. Data on residence of places, which were collected at the time of treatment, were used to give the demographic data for each state or territory.

Table 68: Confinements and births, states and territories, 2000

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia	New Zealand
					Number					
Assisted conception confinements	1,389	921	548	336	279	85	35	40	3,633	346
Australia's confinements*	86,460	61,571	48,515	24,818	17,578	5,798	4,684	3,629	253,053	
Assisted conception births										
Fetal deaths	26	10	8	9	2	3	3	-	61	5
Live births[(a)]	1,702	1,093	690	401	350	97	40	43	4,416	435
All assisted conception births	**1,728**	**1,103**	**698**	**410**	**352**	**100**	**43**	**43**	**4,477**	**440**
Australia's births*	**87,922**	**62,564**	**49,309**	**25,229**	**17,872**	**5,895**	**4,774**	**3,673**	**257,238**	
					Per cent (Assisted conception to Australia)					
Assisted conception confinements	1.6	1.5	1.1	1.4	1.6	1.5	0.7	1.1	1.4	
Assisted conception births										
Fetal deaths	4.4	2.4	2.3	4.4	1.9	6.5	7.9	-	3.4	
Live births[(a)]	1.9	1.8	1.4	1.6	2.0	1.7	0.8	1.2	1.7	
All assisted conception births	**2.0**	**1.8**	**1.4**	**1.6**	**2.0**	**1.7**	**0.9**	**1.2**	**1.7**	

(a) Live births include 'not stated' birth status.
* *Source*: AIHW National Perinatal Statistics Unit 2003.

Table 69: Duration of pregnancies, all confinements, states and territories, 2000

Duration of pregnancy (weeks)	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia	New Zealand
					Number					
20–27	36	25	8	9	4	4	2	1	89	6
28–31	36	19	18	8	13	3	2	1	100	12
32–36	256	149	129	61	52	14	5	8	674	71
37 or more	1,052	725	389	254	207	64	26	30	2,747	257
Not stated	9	3	4	4	3	-	-	-	23	-
All confinements	**1,389**	**921**	**548**	**336**	**279**	**85**	**35**	**40**	**3,633**	**346**
20–36	328	193	155	78	69	21	9	10	863	89
					Per cent					
20–27	2.6	2.7	1.5	2.7	1.4	4.7	5.7	2.5	2.5	1.7
28–31	2.6	2.1	3.3	2.4	4.7	3.5	5.7	2.5	2.8	3.5
32–36	18.6	16.2	23.7	18.4	18.8	16.5	14.3	20.0	18.7	20.5
37 or more	76.2	79.0	71.5	76.5	75.0	75.3	74.3	75.0	76.1	74.3
All confinements	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
20–36	23.8	21.0	28.5	23.5	25.0	24.7	25.7	25.0	23.9	25.7

Table 70: Singleton and multiple confinements, states and territories, 2000

Plurality	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia	New Zealand
					Number					
Singleton	1,061	750	415	265	211	71	29	37	2,839	257
Twin	317	160	117	68	63	13	4	3	745	84
Triplet or higher order	11	11	16	3	5	1	2	-	49	5
All confinements	**1,389**	**921**	**548**	**336**	**279**	**85**	**35**	**40**	**3,633**	**346**
					Per cent					
Singleton	76.4	81.4	75.7	78.9	75.6	83.5	82.9	92.5	78.1	74.3
Twin	22.8	17.4	21.4	20.2	22.6	15.3	11.4	7.5	20.5	24.3
Triplet or higher order	0.8	1.2	2.9	0.9	1.8	1.2	5.7	-	1.3	1.4
All confinements	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table 71: Sex of infants, states and territories, 2000

Sex	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia	New Zealand
					Number					
Male	896	553	355	205	181	54	22	22	2,288	223
Female	830	550	343	205	171	45	21	21	2,186	217
Not stated	2	-	-	-	-	1	-	-	3	-
All births	**1,728**	**1,103**	**698**	**410**	**352**	**100**	**43**	**43**	**4,477**	**440**
					Per cent					
Male	51.9	50.1	50.9	50.0	51.4	54.5	51.2	51.2	51.1	50.7
Female	48.1	49.9	49.1	50.0	48.6	45.5	48.8	48.8	48.9	49.3
All births	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Table 72: Birthweight of infants, states and territories, 2000

Birthweight (g)	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Australia	New Zealand
					Number					
Less than 500	12	8	2	8	3	3	1	-	37	2
500–999	34	22	14	9	4	3	4	-	90	9
1000–1499	46	31	28	19	19	7	3	1	154	17
1500–1999	130	67	56	14	34	4	4	2	311	35
2000–2499	241	128	117	39	58	15	5	2	605	80
2500–2999	383	231	161	98	80	12	4	14	983	97
3000–3499	453	322	187	115	83	28	10	10	1,208	104
3500–3999	330	208	95	80	47	17	9	10	796	68
4000 and over	91	80	34	27	23	10	3	4	272	28
Not stated	8	6	4	1	1	1	-	-	21	-
All births	**1,728**	**1,103**	**698**	**410**	**352**	**100**	**43**	**43**	**4,477**	**440**
Less than 2500	463	256	217	89	118	32	17	5	1,197	143
					Per cent					
Less than 500	0.7	0.7	0.3	2.0	0.9	3.0	2.3	-	0.8	0.5
500–999	2.0	2.0	2.0	2.2	1.1	3.0	9.3	-	2.0	2.0
1000–1499	2.7	2.8	4.0	4.6	5.4	7.1	7.0	2.3	3.5	3.9
1500–1999	7.6	6.1	8.1	3.4	9.7	4.0	9.3	4.7	7.0	8.0
2000–2499	14.0	11.7	16.9	9.5	16.5	15.2	11.6	4.7	13.6	18.2
2500–2999	22.3	21.1	23.2	24.0	22.8	12.1	9.3	32.6	22.1	22.0
3000–3499	26.3	29.4	26.9	28.1	23.6	28.3	23.3	23.3	27.1	23.6
3500–3999	19.2	19.0	13.7	19.6	13.4	17.2	20.9	23.3	17.9	15.5
4000 and over	5.3	7.3	4.9	6.6	6.6	10.1	7.0	9.3	6.1	6.4
All births	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Less than 2500	26.9	23.3	31.3	21.8	33.6	32.3	39.5	11.6	26.9	32.5

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Definitions and glossary

Artificial insemination (AI): Insemination, or injection of semen or prepared spermatozoa, into the vagina, cervix, uterus, or fallopian tube, to aid fertility. The male partner's sperm (AIH) or donated sperm (DI) can be used.

AIH: Artificial insemination (with) husband's (sperm).

Assisted hatching: An in-vitro fertilisation micromanipulation in which a small opening is made in the zona pellucida of the embryo to help the blastocyst emerge prior to implantation.

Biochemical pregnancy: The evidence of pregnancy is derived only from raised levels of serum β human chorionic gonadotrophin (βhCG), but without any sign of a gestational sac on ultrasound and in the absence of chorionic villi if curettage is done.

Blastocyst: Stage of development of the embryos about 5-6 days after fertilisation.

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.

Clinical pregnancy rate: The percentage of treatment cycles that result in a clinical pregnancy, including ectopic pregnancies, spontaneous and induced abortion, and viable pregnancies of at least 20 weeks gestation but excluding biochemical pregnancies. Pregnancy rates are usually expressed per 100 treatment cycles commenced, or per 100 cycles reaching the stage of attempted oocyte retrieval or embryo transfer.

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).

Cryopreservation: Freezing and storage of gametes, zygotes or embryos.

DI: Donor insemination (used to be called AID, artificial insemination donor, until the advent of AIDS).

Donor embryo: A fertilised egg where the sperm and oocyte used do not belong to the couple attempting to conceive. A donor embryo may be donated from a couple, or may be made up from a donated oocyte and donated sperm.

Donor oocyte: An unfertilised egg (oocyte) not belonging to the female member of the couple attempting to conceive. The donor may or may not be known to the couple.

Donor sperm: Sperm not belonging to the male member of the couple attempting to conceive. The donor may or may not be known to the couple.

Ectopic pregnancy: A pregnancy in which implantation takes place outside the uterine cavity.

Embryo: Product of conception from the time of fertilisation to the end of the embryonic stage 8 weeks after fertilisation.

Embryo transfer (ET): Procedure by which the embryo (usually aged 1 to 2 days but may be more if developed to blastocyst stage) is placed into the uterus or the fallopian tube after IVF or ICSI.

Embryo transfer cycle: The transfer of one or more embryos to the uterus or fallopian tube.

Fertilisation: The penetration of the ovum by the spermatozoon and fusion of genetic materials resulting in the development of a zygote.

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 400 g 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.

Fetus: The product of conception starting from completion of embryonic development (at 8 completed weeks after fertilisation) until birth or abortion.

Fresh embryo: Fresh embryos result from fertilisation in laboratory of oocytes collected by aspiration from ovarian follicles. These embryos are subsequently transferred within several days to the uterus or fallopian tube.

Frozen embryo: Freezing (cryopreservation) of fresh embryos produces frozen embryos which are subsequently thawed prior to transfer to the uterus or fallopian tube.

Full-term birth: A birth that takes place at 37 or more completed week of gestational age. This includes both live births and stillbirths.

Gamete intrafallopian transfer (GIFT): An assisted conception procedure in which unfertilised eggs plus sperm (i.e. gametes) are transferred to the fallopian tube, so that fertilisation occurs in the normal place.

Hatching: It is the process that precedes implantation by which an embryo at the blastocyst stage separates from the zona pellucida.

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

In-vitro fertilisation (IVF): Fertilisation of the egg by a sperm in-vitro, i.e. in the laboratory. In this report, IVF excludes ICSI.

Induced abortion: Termination of pregnancy of less than 20 weeks gestation.

Infertility: An inability to achieve pregnancy within 12–18 months of having regular unprotected intercourse.

IVF unit: An infertility treatment unit where the assisted conception techniques of IVF, ICSI and GIFT are used.

Intracytoplasmic sperm injection (ICSI): An in-vitro fertilisation technique for overcoming infertility due to oligospermia (reduced number of sperm in the ejaculate) or azoospermia (complete absence of sperm in the semen) involving sperm microinjection, in which one or more sperm are injected through the zona pellucida, across the perivitelline space, through the vitelline membrane (the egg cell's membrane), and into the substance (or cytoplasm) of the egg itself.

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 weighting less than 2,500 g at birth.

Microepididymal sperm aspiration (MESA): Use of microsurgery to dissect the epididymis to find motile sperm cells suitable to be aspirated, isolated and prepared for ICSI.

Neonatal death: A death of a liveborn infant within 28 days of birth.

Newborns or infants born: The number of live births plus stillbirths.

Oocyte: An unfertilised egg (ovum).

Perinatal death: A perinatal death is a fetal death of at least 20 weeks gestation or at least 400 g birthweight or a neonatal death.

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).

Pregnancy rate: See 'clinical pregnancy rate' and 'viable pregnancy rate'.

Pre-implantation genetic diagnosis (PGD): Screening of cells from pre-implantation embryos for the detection of genetic and / or chromosomal disorders before embryo transfer.

Preterm birth: A liveborn or stillborn infant of at least 20 but less than 37 weeks gestation.

Spontaneous abortion: Loss of an intrauterine pregnancy detected clinically or by ultrasound, and less than 20 weeks gestation (from the first day of the last menstrual period).

Stillbirth: A birth in which the fetus does not exhibit any sign of life when completely removed or expelled from the birth canal at or above 20 weeks gestation.

Subzonal insemination (SUZI): An IVF technique involving sperm microinjection, in which one or more sperm are injected through the zona pellucida into the perivitelline space of the oocyte.

Testicular sperm aspiration (TESA): Procedure in which spermatozoa are obtained directly from testicle(s), by either aspiration or surgical excision testicular tissue.

Testicular sperm extraction (TESE): Dissection into the testis itself to recover immature sperm cells from the (often small) fraction of testicular tubules there which still contain such cells, for use with ICSI.

Thawed embryo: See 'frozen embryo'.

Treatment cycle: Procedure for collecting eggs (oocytes), usually after ovarian stimulation, involving the passing of a needle into a mature follicle either directly at laparoscopy or (more usually) via the vagina guided by transvaginal ultrasound.

Viable pregnancy rate: The percentage of treatment cycles that result in a viable pregnancy of at least 20 weeks gestation, most commonly expressed per 100 attempted oocyte retrievals (egg collections). A multiple pregnancy is counted as one pregnancy. Pregnancies resulting in live births and / or stillbirths are included.

Zygote intrafallopian transfer (ZIFT): Procedure in which the zygote, in its pronuclear stage of development, is transferred into the fallopian tube.

Zygote: The diploid cell, resulting from the fertilisation of an oocyte by a spermatozoon, which subsequently develops into an embryo.