



## Characteristics of women in Queensland who gave birth following conception by Assisted Reproductive Technology (ART), 1998 to 2008

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Assisted Reproductive Technology (ART) describes a range of methods and procedures which are designed to assist infertile couples to conceive. Infertility is usually defined as the failure to conceive after one year of unprotected sex or the inability to carry a pregnancy to live birth<sup>1</sup>. Available estimates suggest that one in six Australian couples is affected by infertility based on this definition<sup>1</sup>.

Treatment with ART is common across Australia and New Zealand although success rates are generally modest. In 2007, there were 56,817 treatment cycles started in Australia and New Zealand. Of these, 22.6% resulted in a clinical pregnancy and 17.4% resulted in a live birth. This hasn't changed a great deal since 2003 where 21.6% of cycles resulted in a pregnancy and 16.3% in a live birth<sup>1</sup>.

The purpose of this publication is to describe characteristics of Queensland women who gave birth following conception through ART. The data were drawn from the Queensland Perinatal Data Collection (QPDC) for the years 1998 to 2008. The QPDC is a complete census of births in Queensland and contains detailed information on obstetric, delivery and perinatal outcomes. The analysis was confined to women whose usual state of residence was Queensland and to women who were treated with only one method of ART. Characteristics of interest were maternal age, multiple gestation deliveries, patient chargeable status (public versus private sector), parity and obesity.

In 2008, approximately 4% of births in Queensland were the result of conception via ART. This represents a 70% increase over the corresponding rate in 1998 (2.3% of births). Extracorporeal techniques were more commonly used in ART conceptions that resulted in a birth than AIH/AID/Ovulation induction (2008: 2.6% vs 1.3%). However, it is not clear whether this reflects differences in success rates between the two technologies or an increase in the number of women who are indicated for extracorporeal techniques.

The prevalence of ART births varied according to maternal age as did trends over the 11-year period from 1998 to 2008 (Figure 1). There was a strong increase in the proportion of ART births among women aged 40 years and older, ranging from 4.2% in 1998 to 13.4% in 2008. This corresponds to a relative increase of 219%. A similar (albeit more modest) trend was observed amongst women aged 35 to 39 years, with the prevalence of ART births increasing by 75% from 4.8% in 1998 to 8.4% in 2008. The prevalence of ART births amongst women aged 15 to 34 years increased by 50% from 1.9% to 2.8%, but remained a very small percentage of births in this age group.

Multiple birth pregnancies were more common in women who conceived by ART than in those who conceived naturally (2008: 12.5% vs 1.3%) and this has remained stable since 1998. Extracorporeal techniques are more likely to result in a multiple birth pregnancy than AIH/AID/Ovulation induction (2008: 14.8% vs 8.2%) although the gap between the two technologies has narrowed since 1998 (Figure 2). This is due to the continuing decline in multiple births resulting from extracorporeal techniques. This decline is attributable to clinical and regulatory changes which have reduced the number of fertilised ova returned to the woman's uterus.

Women who conceived by ART were more likely to be private patients than women who conceived naturally and this has changed little since 1998. In 2008, roughly 78% of women who conceived by ART were private patients while only 30.4% of women who conceived naturally gave birth in the private sector. The corresponding figures for 1998 were 72.8% and 30.5%. There were some differences according to the method

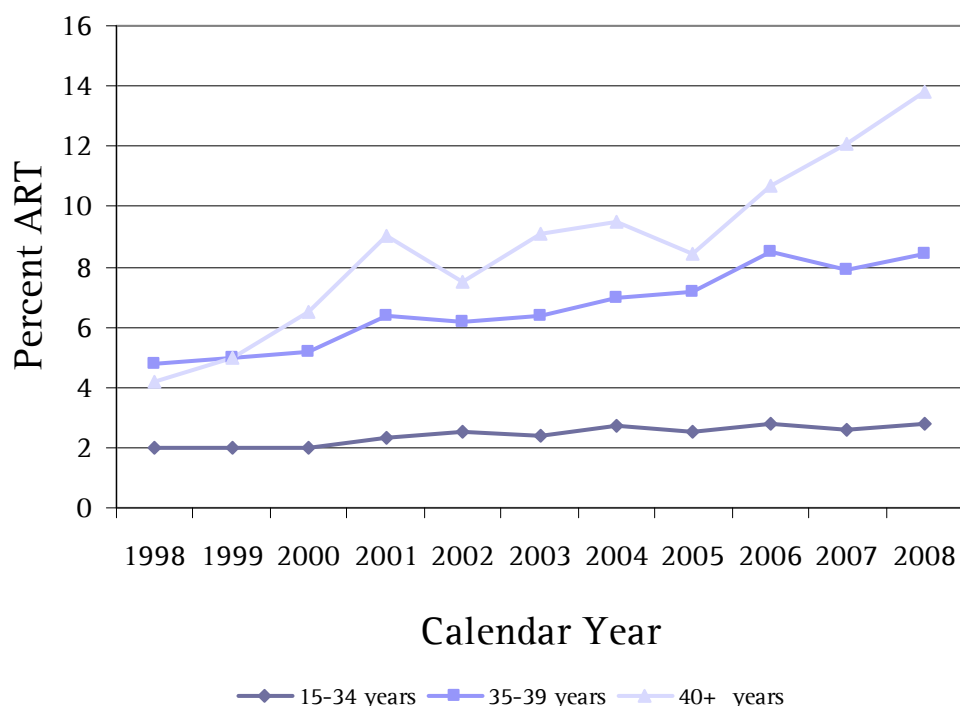
used: women who conceived using AIH/AID/Ovulation induction were less likely to be private patients than those who conceived using extracorporeal techniques (2008: 74.6% vs 80.4%). However, the difference between these groups has declined since 1998 (AIH/AID/Ovulation induction vs Extracorporeal: 63.8% vs 72.8%).

The proportion of nulliparous women was higher among ART births when compared to births conceived naturally (42.1% vs 28.8%) and there has been little change in the percentage of nulliparous women in either group since 1998 (ART vs non-ART: 42.6% vs 29.2%). The two technologies did not differ from each other in relation to the proportion of nulliparous women in 2008 (AIH/AID/Ovulation induction vs extracorporeal techniques: 42.4% vs 41.5%).

There was no clear evidence of variation in conception method across BMI groups. The prevalence of births resulting from ART was 3.5% for women in the underweight category, 4.4% for those in the normal range, 3.6% for overweight women and 3.8% for women who were obese. This did not vary according to the method of ART used. Pre-pregnancy height and weight were only added to the QPDC in 2007<sup>2</sup> and it is not yet possible to evaluate trends in relation to ART and BMI.

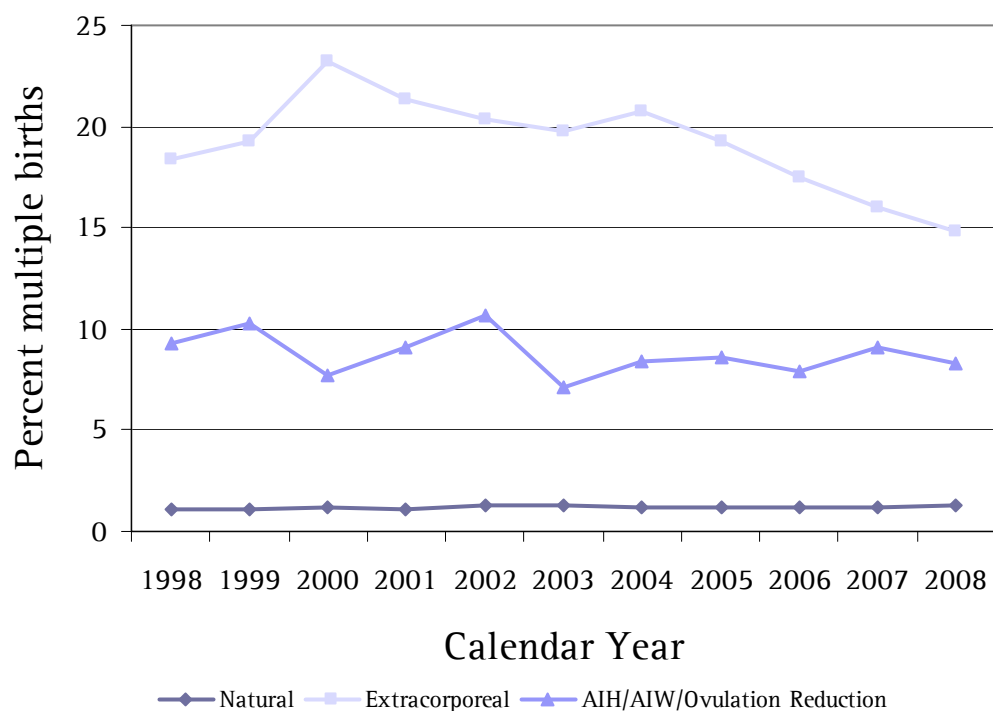
The key findings of this study are the increasing percentage of ART births among the older age groups, as well as the decline in multiple gestation pregnancies among women who conceived by ART. It is difficult to ascertain whether the increase by age reflects improvements in success rates among older women or increasing uptake of ART by these women. Nonetheless, the decrease in multiple births associated with ART, which has been reported elsewhere<sup>1</sup>, has been linked to changes in practice.

**Figure 1. Trends in births following Assisted Reproductive Technology (ART) by age group, Queensland, 1998 to 2008**



Source: Queensland Perinatal Data Collection. Extracted 10 June 2010

Figure 2: Trends in multiple births by type of conception, Queensland, 1998 to 2008



Source: Queensland Perinatal Data Collection. Extracted 10 June 2010

*Acknowledgements: We wish to acknowledge the contribution of the Queensland Maternal and Perinatal Quality Council to the design and interpretation of results included in this StatBite.*

<sup>1</sup> Wang YA, Chambers GM, Dieng M & Sullivan EA 2009. Assisted reproductive technology in Australia and New Zealand 2007. Assisted reproduction technology series no. 13. Cat. no PER47. Canberra: AIHW.

<sup>2</sup>Technical Report #4 (2009). Technical notes on compliance with the maternal height and weight measures (at time of conception) included in the Queensland Perinatal Data Collection (QPDC) from July 2007. Health Statistics Centre, Queensland Health. [http://qheps.health.qld.gov.au/hic/pdf/tech\\_report/techreport\\_4.pdf](http://qheps.health.qld.gov.au/hic/pdf/tech_report/techreport_4.pdf)