

An Overview of Assisted Reproduction in Australia and Directions for Social Research

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Abstract

Public interest in assisted reproduction (AR) has remained high since the birth of the first 'test tube baby' in the United Kingdom in 1978. Australian scientists have been frontrunners in the development and implementation of reproductive technology and recently, there has been renewed debate about government funding and access to AR. This paper provides a timely overview of reproductive technology services in Australia and examines the body of social research on the impacts of this technology, particularly previous research on how women and their partners experience assisted reproduction procedures. The popular expectations of success are compared to the latest success rates. It is argued that there is a need for more social research to counterbalance the dominance of the biomedical aspects of AR, in particular, for more research into people's actual experiences of AR, expectations of the likelihood of success, access issues and on the general impact of involuntary childlessness.

Key Words – Assisted reproduction; involuntary childlessness; infertility; IVF; women

Introduction

Australia has been at the forefront of assisted conception techniques since the late 1970s (Australian Institute of Health & Welfare (AIHW) 2003). The development of reproductive technology and its relatively rapid application to humans has provoked strong reactions from various sources, such as bio-ethicists, theologians, service users and feminists. Specialised medical journals, conferences and societies have been established worldwide in response to this technology and include the Journal of Human Reproduction, the European Society of Human Reproduction and Embryology, the Human Fertilisation and Embryology conference, *inter alia* and biomedical reporting of developments continue to expand. In contrast, while there was a considerable body of social research from the 1980s and early 1990s exploring the impacts of the technology on women, their partners and on society in general (Arditti, Duelli-Klein, Minden 1984; Klein 1989a & 1989b; Rowland 1992 as exemplars), recent qualitative research from the social sciences into AR has been limited. In order to summarise and evaluate our current knowledge of the impacts of reproductive technology, it is necessary to briefly explore its development and to provide a basic timeline. This paper outlines the Australian context of AR, including the legislative frameworks, basic funding structures and the broad nature of service provision in Australia. The outcomes of AR and how it is popularly perceived will be discussed. Criticisms of AR will be considered with particular emphasis on the potential for the technology to reproduce gender inequities. Previous research relating to women's actual experience of AR will also be summarised before considering areas requiring further social research.

What is AR?

Assisted reproduction can be defined as any manipulation of reproduction, from artificial insemination with partner or donor sperm, to hormonal therapy right through to surgical procedures to assist conception (Reed 2001). It is all procedures that involve handling ova and sperm 'for the purposes of women becoming pregnant' (Tunick 1999, p.53). AR encompasses a range of interventions including *in vitro* fertilisation (IVF), gamete intra-fallopian transfer (GIFT) and intra cytoplasmic sperm injection (ICSI) and pharmacological interventions such as ovarian stimulation (Garceau et al. 2002). IVF and ICSI are the most commonly used methods in Australia (Bryant, Sullivan & Dean 2004)

The Birth and Growth of AR

The first attempt to fertilise mammalian ova occurred as early as 1878 in Vienna. It was not until 1934 that the first mammalian ovum (a rabbit's) was successfully fertilised. In the 1940s, human ova were successfully fertilised *in vitro*, though not implanted (Lorber 1988). The potential for IVF to redress human infertility gained momentum in the mid-twentieth century. The first 'unequivocal mammalian IVF birth' (non-human) occurred in the United States of America in 1959 (Lorber 1988, p.119). The pace of experimentation in AR was sustained and in 1978, the first human IVF baby, Louise Brown, was born in the United Kingdom (Gooch 2003).

AR has been developed by agricultural scientists, biologists, physicians, biochemists and gynaecologists. It can be argued that its predominant focus is on biology, rather than the human psychosocial and spiritual experiences of reproduction (Rushing 2000). Infertility has been constructed as a state of biological disease and AR is promoted as, and generally perceived to be, a 'treatment' or solution to infertility (Fisher 1989). Given that one in six couples is affected by infertility (Fertility Society of Australia (FSA) 2005a), the provision of

AR has become a 'major industry in most industrialised countries' and it is underpinned by 'powerful professional and commercial interests' (Blyth 1999, p.727). It has become an important, if difficult, option for involuntarily childless women and their partners.

AR in Australia

The first IVF procedure in Australia occurred in 1979 and the first Australian (the world's fourth) IVF baby was born in Melbourne in June 1980 (AIHW 2003). Between 1981 and 1984, there were thirteen IVF babies born worldwide, twelve of them born in Australia (Gooch 2003).

There is no Federal government legislation in Australia to regulate reproductive technology (Department of Human Services (DHS) 2004). However at the 2003 meeting of the Council of Australian Governments (COAG) there was an indication of Federal and State governments' desire to work towards uniform legislation across Australia to standardise the regulation of AR (FSA 2004). Currently, only three Australian states have legislation specific to assisted reproduction – Victoria (Infertility Treatment Act 1995), Western Australia (Human Reproductive Technology Act 1991 and the Amendment Act 1996) and South Australia (Reproductive Technology Act 1988). The remaining states and territories refer to the National Health and Medical Research Council (NHMRC) guidelines and recommendations for ethical practice (NHMRC 1996).

In New South Wales aspects of the Human Tissue Act 1983 are also relevant to reproductive technology (DHS 2004). The New South Wales parliament has a consultation draft bill – the *Assisted Reproductive Technology Bill 2003* – which is yet to be proclaimed. Queensland has legislation regarding surrogacy arrangements (the Surrogate Parenthood Act 1988) as does the Australian Capital Territory (the Substitute Parents Act 1994) and Tasmania (the Surrogacy Contracts Act 1994). Clinics in the Northern Territory are required to adhere to the South Australian guidelines, with some exceptions which restrict access to NT clinics by non-heterosexual couples and single women (DHS 2004). The Fertility Society of Australia (the peak body representing the AR sector) has also developed accreditation standards, an accreditation committee (Reproductive Technology Accreditation Committee) and a Code of Practice for AR clinics (FSA 2002).

In 2005, there were thirty accredited primary clinics and thirty-four satellite/associate clinics in Australia in sixty-four locations, covering all states and territories (FSA 2005b). Primary clinics have a range of services and staff on-site, full-time, whilst satellite/associate clinics offer some, but not necessarily all AR procedures and support services to clients.

The Federal government introduced Medicare rebates for AR in 1990, initially with a limit of 6 cycles. In 2000, the six-cycle limit was removed (Health Insurance Commission (HIC) 2005). Some procedures however are not covered by the rebate (ICSI and 'assisted hatching' for example) leaving clients to bear the full costs of these procedures (Melbourne IVF (MIVF) 2004; Sinclair 2003). Clients face a range of charges not only for AR procedures but also for associated costs like anaesthetist fees, day admission to medical facilities, biopsies, pathology, post-treatment medication, administration charges, etcetera (for examples see MIVF 2004). It is estimated that the 'out of pocket cost' or 'gap' per IVF cycle is at least \$1500.00 after the Medicare rebate (Sinclair 2003, p. 4) and up to \$3000.00 per cycle (Wroe 2005). Given that most couples will leave AR only after several cycles, the total cost is likely to be substantial. There is much current debate about whether Medicare coverage for AR procedures should be limited to three cycles per year for women under the age of forty-two

years, and to three cycles in total for women over forty-two (see for example Wroe 2005 & Metherell 2005).

In terms of comparative health expenditure, in the late 1980s, total funding in Australia for AR clinics was \$A17 million. This compared with a total expenditure on HIV/AIDS clinics of \$A10.1 million (Klein 1989a, p.283). The total spent on AR by the Federal government in 1991 – 1992 outweighed the allocation of funding for the whole of the women's health policy between 1989 and 1993 (Ewing 1992). The cost to taxpayers through the Medicare system was \$A25 million in 1992 (Ewing 1992, p.8) and is now estimated at \$78.6 million (Wroe 2005). In addition to these budgeted costs, the hidden costs of pregnancy monitoring, childbirth interventions, pre-term births and subsequent care, treatment for iatrogenic damage, research grants, and so on, must be accounted for (Ewing 1992).

AR Outcomes

People access AR clinics after a period of involuntary childlessness in the hopes of achieving pregnancy and of giving birth to a healthy baby. The measurement of success in AR clinics as represented in clinic documents and on websites has been criticised for not clearly and easily relating to these hopes (Daya 2005; Min et al. 2004; NHMRC 1998; Fisher 1989). Clinics often state their success rates in terms of clinical pregnancies achieved (Napoli 1999), or ongoing pregnancies achieved and not necessarily in terms of healthy, live births achieved per client per treatment cycle started. Thus, it is often unclear for clients as to what a clinic's advertised success rates actually represent. In many instances, clients would need considerable critical skill to evaluate the data presented to them relating to outcomes after AR procedures (NHMRC 1998; Fisher 1989; Klein 1989b).

Various authors have recommended that data on AR outcomes be systematically and centrally collected and collated, and that the outcome measure should be in terms of healthy live singleton babies born / client / treatment cycle started (Min, et al. 2004; Purdy 2000; NHMRC 1998; Klein 1989b; Shannon 1988). The NHMRC (2004) revised guidelines on patient information require clinics to use plain language to describe the side effects, the legal, financial and psychosocial impacts of treatment and to report on success rates in a clear and accessible manner. In Australia, clinics are required to provide information on all treatment cycles to the National Perinatal Statistics Unit (NPSU) of the Australian Institute of Health and Welfare (AIHW 2001). From this data, the AIHW and NPSU report on the outcomes of AR in Australia each year and on the chance of pregnancy per treatment cycle, number of babies born, *inter alia*. The latest statistics from the AIHW are for 2002. In 2002, there were 5,737 live births after AR in Australia (Bryant, Sullivan & Dean 2004). This is an increase from 5,275 in 2003 (1.9% of all births) (AIHW 2003). In 1999, 1.7% of all births were 'IVF babies' (AIHW 2001), up from 1.1% in 1995 and up from 0.9% in 1992 (AIHW 1998).

Bryant, Sullivan and Dean (2004) report on the success rates for fresh, non-donor cycles, frozen, non-donor cycles, success by type of treatment (including donor cycles) and the 'birth emphasising successful singleton at term (BESST) endpoint measurement' (Min et al. 2004). The BESST measurement takes into account all non-donor treatment cycles started in which ovulation drugs were used and 'defines the successful endpoint as a single, live baby at full gestation of 37 weeks or more' (Bryant, Sullivan & Dean 2004, p.15). Using this measure, 12.9% of all fresh, non-donor treatment cycles started in Australia and New Zealand in 2002 were successful. When the age of the women using AR was taken into account, the greatest success rate was for women aged 25-29 years (26%) and lowest for women aged 40-44 years (6%) (Bryant, Sullivan & Dean 2004).

Assisted conception pregnancies are more likely to eventuate in various adverse outcomes. For example, there is a higher risk of spontaneous abortion and of terminations for foetal abnormality, a greater chance of stillbirth, a rate of perinatal death 2.5 times higher than naturally conceived pregnancies, a 46.7% chance of caesarean birth (compared to 23.3% for natural conceptions), a higher chance of pre-term birth (33% in AR babies compared to a 7.9% chance for naturally conceived babies) and a higher rate of low birth weight for AR babies (26.4% compared to 6.8% in non-AR babies) (AIHW 2003). Recent research into genetic anomalies, health problems and safety issues for AR babies indicates that there is a significant increased risk of adverse outcomes for AR babies (Hansen et al. 2002; Kolata 2002; Lambert 2002 & 2003).

If standardised measures of success were used by clinics and more information on associated risks was available, this would be more meaningful to clients. It would enhance the decision-making process in relation to AR and would facilitate more realistic expectations about outcomes and risks. In addition to this, it would be useful for clients to have some indication of the average number of treatment cycles undertaken by service users to achieve a successful live birth as well as information on the proportion of clients who discontinue AR without achieving a live birth. This would assist people in their decision-making around their use of AR procedures and help service users to set limits on their uptake of AR, as recommended by Peddie, Van Teijlingen and Bhattacharya (2005). Likewise this information would inform the current debate about Medicare expenditure on AR services.

Perceptions of AR

Most service users and the general public 'consistently overestimate the success of reproductive technologies' (Hammer Burns 1999, p.100; Peddie, Van Teijlingen & Bhattacharya 2005). Public perception appears to remain positive (Kovacs et al. 2003) and popular media tends to emphasise the successes of AR and reinforce a perception of it as an increasingly routine, viable, unproblematic and successful treatment for infertility. This representation of AR as a modern miracle reinforces images of science triumphing over nature and the ability of humans to conquer all via technology and 'know how' (Hellwege 1999; Klein 1989a; Murdoch 1985). It appeals to the belief that medicine is a cure-all and that it will make us happy and that everyone can achieve pregnancy (Gosden 2000; Wiczuk 2000; Djerassi 1999; Murdoch 1985). For example, comments such as 'if you want to have a child, you just go on IVF ...there's no necessity to be childless now' (Gooch 2003, p.5), that pregnancy is 'often, but not always' achieved via AR procedures and that success rates 'have zoomed upwards' illustrate this point (Sinclair 2003, pp.1 & 4).

AR is increasingly represented as 'routine' and this tends to downplay the associated risks (Sharp 2000) and the high rates of technological failure. Whether women are adequately informed of the risks is highly debatable (Peddie, Van Teijlingen & Bhattacharya 2005; Reed 2001; Hellwege 1999; NHMRC 1998; Ewing 1992; Klein 1989a & 1989b; Hoffman Baruch, D'Adamo & Seager 1988; Murdoch 1985). Klein (1989b), Ewing (1992) and NHMRC (1998) report on the lack of accurate information on risks and outcomes for AR clients. In an NHMRC (1998, pp.39-41) survey of AR clinic information brochures, it was noted that not all mentioned the main adverse outcomes of procedures. It was also noted that the information was often conveyed in an overly positive, reassuring tone which tended to downplay risks. In addition to these ethical questions, there are considerable emotional, physical, spiritual and opportunity costs of undergoing AR procedures plus substantial financial costs to the State and the individual. It is also interesting to note that data on adverse outcomes such as ovarian hyper-stimulation and other complications of AR treatment, pregnancy complications,

and infant morbidity are limited to clients' self-reports and as such, this information is not 'vital statistics data' (Bryant, Sullivan & Dean 2004, p.48). Some complications are only recorded if there has been a hospital admission. It is therefore likely that there are considerable degrees of hidden complications arising from reproductive technology treatments.

However, the place of AR and its powerful offer of hope and empowerment to involuntarily childless women and their partners cannot be overemphasised. The existence of AR clinics adds to reproductive choices and potential self-determination for those able to access these services. It is not an option undertaken lightly and is often the last hope of achieving parenthood for service users.

AR and Gender Inequality

Earlier social research criticised AR as being 'a new form of violence against women' (Klein 1989b, p.8) and as reinforcing gender inequalities by focussing on and reinforcing the gender politics of women's biological role in reproduction (Hoffman Baruch, D'Adamo & Seager 1988). Indeed, Hoffman Baruch, D'Adamo and Seager (1988, p.136) described it as 'the new misogyny', the plundering of private space which serves to exacerbate the effects of the deprivation of public space on women. Later researchers discussed how pronatalism underpins AR and reinforces the definition of all women in relation to reproductive status: 'one is either a mother, a potential mother, childless, child free or infertile' (Kent 2000, p.105). Kent (2000) and Maher (2001) also argue that AR is another form of patriarchal oppression of women. Both discuss the medicalisation of women's health, notably reproductive health, citing the language and practice of medical science as evidence of systematic oppression. They postulate that the objectification and 'otherness' of women is reinforced via AR.

The role played by predominantly male scientists is venerated and amplified, whilst the women are often less visible, less 'active' participants. This reinforces the Aristotelian tradition of male as active, female as passive and thus serves as another mechanism to preserve male dominance in a gendered social order (Bourdieu 2001). Corea (1988, p.89) states that reproductive technologies threaten to 'remove the last woman-centred process from us' and reinforce the message that technology is best – 'better than women'. The dominance of the technocratic approach devalues and silences competing understandings (Sharp 2000). This coupled with the relatively rapid expansion of AR services in Australia and the marketing of these services ensures that the 'infertility market' is indeed a 'booming business not to be underestimated' (Klein 1989a, p.248).

Once a new technology becomes big business, or at least big enough to interest government regulators, then it becomes power. The new technology thus becomes another way in which power expands and institutionalises itself in society (Mattzleo 1988, p.212).

Further to this, women are largely silenced and excluded from the discourse of AR (Irigaray 1985). Even when the source of infertility is a male factor (as it is for 40-50% of couples), it is still the woman who undergoes most of the procedures and bears most of the risks involved (Inhorn 2003). Further, women's bodies are once again often defined by medical science as 'faulty', 'other' and as objects to be manipulated (Lie 2002; Lockwood 1999).

The terminology and symbols of AR are also interesting in that they often serve to reinforce modernist, Cartesian notions of the body and its processes. The commercialised, mechanised language surrounding AR (for example, the *banking* of gametes and embryos, sperm *deposits*, *products* of conception, *extraction* / *collection* of eggs, etcetera) can be

argued to dehumanise and fragment reproduction and people (mainly women) and to transform humans into scientific work objects (Lie 2002; Sharp 2000). This obscures the people involved as subjects and consolidates their relegation to object status. Biomedicine is dualist at heart in its separation of 'body' and 'self'; it is a 'mine of objectification' (Sharp 2000, p.3). Sharp (2000, p.7) also notes that women's bodies 'are frequently prized for their reproductive potential, rendering them especially vulnerable to commoditisation'. The woman's body is perceived as the 'body-for-others, constantly exposed to the objectification performed by the gaze and the discourse of others' (Bourdieu 2001, p.63).

The central visual symbolism of the technology is often of one sperm penetrating an ovum in a glass dish. Another very common visual representation is of a needle puncturing an ovum wall, presumably to insert sperm directly into the ovum. This can be seen as a visual representation of symbolic violence (Bourdieu 2001). These images reinforce the appearance of masculine domination in the process of reproduction. The ovum is represented as static and vulnerable to penetration and this serves to legitimise domination by 'embedding it in a biological nature that is itself a naturalised social construction' (Bourdieu 2001, p.23). That the union of ovum and sperm is but one event, albeit an important one, in a complex and often little understood range of processes that result in a successful pregnancy is not highlighted. Most of the other necessary processes occur in the 'privacy' of a woman's body and are relatively unacknowledged. Thus less cultural value is placed on these processes and women's capacities here are devalued. This reinforces the 'naturalness' and importance of the 'public' AR process of fertilisation, *in vitro*, and reinforces the invisibility and private nature of women's procreative capacities. It separates women from procreative power and reproductive capacity, citing male-dominated science as a better method (Lie 2002; Corea 1988). Thus, technological intervention in procreation via AR is privileged. This symbolic violence is not, however, necessarily enacted at 'the level of conscious intentions' (Bourdieu 2001, p.59).

The predominance of the biomedical approach to reproductive technology also tends to individualise what is essentially a social decision that occurs in a social context. Patterns of decisions about reproduction have a broader impact. There is a need to develop a broader socio-political discourse to make the implications of AR available for comprehensive discussion and for service users to be included as a pivotal element in such discussion.

It is important to recognise women's self-determination in relation to reproductive choices. Given comprehensive, accessible information about AR, women and their partners can make informed decisions about their use of this technology. It is only in the absence of clear information about options, side-effects, success rates, costs, and so on, that decision-making and empowered choice is compromised. Indeed many service users describe AR as empowering and a positive step in their quest for parenthood (see for example MIVF 2004).

Experiencing AR

Research on women's experiences of AR indicates a range of feelings about their treatment. Many women feel physically, emotionally and financially drained by involvement in AR. In addition, many women have reported feelings of objectification, commoditisation and alienation – 'I felt pried apart' (McKean 2002 in MIVF 2004, p.1). Anxiety, depression, conflict in relationships, disruption to other life commitments, anger and powerlessness are often also part of these women's experiences. Sinclair (2003, p.4) described her experience of IVF as 'drawn out, invasive and uncomfortable ... heartbreaking but almost impossible to abandon'. She also described how 'uncertainty seeps into every aspect of life' and that planning for many other aspects of life often hinged on the timing of IVF procedures – 'as

long as you're in the program, your life is in limbo' (Sinclair 2003, p.4). Other personal accounts of IVF (see for example Peddie, Van Teijlingen & Bhattacharya 2005; MIVF 2004) describe how IVF dominates women's lives and often impacts on women's ability to meet work, family and other commitments. In Klein's (1989b) study of AR and women, most respondents identified feeling depersonalised during their involvement. Many felt that their emotional needs had not been recognised. Many felt the most positive aspect of their experience was the support from other women attending the clinic (Klein 1989b, p.27).

Some women report frustration with AR in that they had been given hope but insufficient information (Peddie, Van Teijlingen & Bhattacharya 2005; MIVF 2004; Murdoch 1985). Others have also noted that treatment is often long, stressful, disheartening and invasive and that it involves many painful procedures (MIVF 2004; Daniluk 2001; Selis 1999). Selis (1999, p.32) describes his partner's experience as 'reproduction robbed of meaning, denuded of pleasure, and stripped of joy'. Many IVF clients have described their feelings of 'almost constant loss and grief' (Dudzik 2002 in MIVF 2004, p.1). Despite these significant impacts, many IVF clients have indicated how difficult it is to cease IVF and to accept that there is 'not always a baby at the end of the line' (Coffey 2004 in MIVF 2004, p. 2; Peddie, Van Teijlingen & Bhattacharya 2005).

For some clients, the most positive aspect of the experience will obviously be the birth of a healthy baby. For others, other positive aspects have been the feeling that they are doing something constructive about their involuntary childlessness, providing a sense of control over the 'hopelessness' and 'heartache of infertility' (Solomon 2004 in MIVF 2004, p. 2). It can be argued that the medicalisation of infertility has also had the effect of legitimising the impacts of infertility and that AR thus empowers people to take action to alleviate involuntary childlessness (Roach Anleu 1999). AR can be said to offer at the very least, the prospect of hope where before there may have been none.

The Support Needs of AR Clients

Given the nature of AR and the emotional, financial, spiritual and physical investments made in it, it is reasonable to suggest that clients have needs for support: both formal support from service providers and informal support from family and friends. Women have identified a need for support at the time infertility is diagnosed, when they become a client, during treatment and after treatment (Murdoch 1985; Ewing 1992; NHMRC 1998). In the *Review of the Human Tissue Act 1983, Discussion Paper on Assisted Reproductive Technologies (1997)* (s.3.6) the Fertility Society of Australia recommended that counselling is an integral part of AR programs (NSW Department of Health 1997). Counselling is mandatory in some Australian states and is accessible to varying degrees in the other states and territories.

Klein (1989b) notes that many women found that the counselling available to them upon entering AR clinics did not adequately prepare them for the range of physical, emotional and spiritual effects of the treatment. This research also identified that many women find it difficult to develop enough trust for a meaningful relationship with their counsellor, due to the counsellor's direct link to the clinic itself and the perception that all had better 'be well' or their place in the program could be jeopardised (Klein 1989b, p.23). Further, the lack of adequate follow-up counselling was identified as an issue. The need for independent counselling is also highlighted by Ewing (1992). In the absence of access to independent counselling as part of AR programs, there is a risk of 'in-house' counselling being perceived as tokenistic. However, the additional costs of accessing independent counselling may be prohibitive, especially given the high costs already borne by clients. The NHMRC (1998) notes that funding for counselling services in AR clinics is not adequate and that Medicare rebates and

limited private health fund coverage are insufficient, in that rebates are often available only for psychiatric consultations, despite clinic counsellors generally being qualified psychologists or social workers.

On the positive side, some clients have described counselling in very positive terms and many note the importance of having a range of support mechanisms in place, including support groups, newsletters and online groups (MIVF 2004). Counselling was also identified as helpful for clients in accepting infertility and in 'moving on', for grief and loss, pregnancy loss, donor issues, frozen embryo issues and general emotional support (MIVF 2004). Peddie, van Teijlingen and Bhattacharya (2005) recommend improvements in counselling services to better prepare clients for the social and emotional impacts of AR, to improve the quality of communication between clients and clinic staff and to provide adequate follow-up support for clients.

Hammer Burns (1999) advocates for a multidisciplinary team approach to AR, a move away from a purely biomedical approach to mutual participation and to narrative models of practice. Systemic approaches to AR would facilitate a redressing of the mind-body split and create a more humane, holistic environment for women and their partners. The predominance of biomedical approaches and life crisis models in AR clinics reinforces the individualisation and alienation of women and their partners. By neglecting the broader context of AR, the various serious risks, costs, improvements and implications of the technology continue to be obscured.

What More Should We Know About AR?

There are some important questions yet to be convincingly answered about AR, especially in relation to the short term and long term implications of many of the biomedical procedures and pharmaceuticals for both women and children. It is also important to continue to debate the most effective targeting of government and private funds in relation to reproductive options, and to advocate for more research into infertility, prevention and fertility preservation. It is vital that the clinical effectiveness of AR continues to advance and that the reliability and accessibility of the technology is improved.

Given the attention and positive regard that AR commands in popular culture and the demanding nature of the procedures, it is vital that more is heard from women and their partners/families that have experienced AR. Thus, further contemporary research is needed on the experiences of women, their partners and families and on the nature of reproductive decision-making. Also, given that much of the qualitative research into Australian women's experiences of reproductive technology was done in the 1980s, and in light of the expansion in the number of AR clinics in metropolitan and non-metropolitan areas since then, it is now timely to explore how much, or little, has changed for service users in the new millennium. Since psychosocial support before, during and after AR has been identified as an important element of AR service provision (see NHMRC 2004 for example), further exploration of the accessibility of psychosocial support for service users and service users' views on the usefulness of support that was available would also be valuable.

For AR to be a humane, holistic and responsive option, experiential and practical knowledge is required, in addition to theoretical knowledge (Kent 2000) and because 'the objective of providing children to the involuntarily childless [is] not... simply a quest for technical excellence' (Blyth 1999, p.737), more in-depth, qualitative research is also required as to the overall positive and negative aspects of AR in order to maintain and to improve the quality of service provision.

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