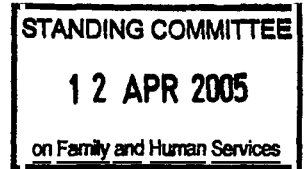


**Submission to the House of Representatives Standing Committee on  
Family and Human Services Inquiry into Balancing Work and Family Life**

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## **Introduction and Context**

Sydney IVF welcomes the House of Representatives Committee on Family and Human Services inquiry into balancing work and family life. We believe that no inquiry into the financial, career and social disincentives to starting a family would be complete without consideration of the medical ramifications of delayed childbearing due to the natural decline in fertility that women experience as they age. Many of these women will find that they require assisted conception technologies in an attempt to overcome their reproductive difficulties.

Established in 1984, Sydney IVF is one of Australia's leading infertility clinics. Each year we provide assisted conception services to more than 2500 women and couples in metropolitan Sydney as well as rural and regional New South Wales, the ACT and Tasmania.

By 42, up to a decade before they reach menopause, more than half of all Australian women are sterile, predominantly through the natural effects aging has on eggs in the ovaries (Appendix 1). As a phenomenon, such sterility is normal and natural. Individually, it is devastating. Nationally, it contributes to the declining birth rate.

Women seeking to balance work with family life often postpone having children until their mid- to late- thirties, when it becomes increasingly likely that there will be infertility that requires in vitro fertilization (IVF) or, ultimately, early sterility that is untreatable except by egg donation.

The correct attribution of this phenomenon to deleterious effects of age on eggs in the ovaries was first discerned in IVF programs. IVF has become an essential component of minimising involuntary childlessness in older women (Appendix 2). The basis for this age effect is not known. Research into the effects of aging on human eggs is collaterally and presumably unintentionally prevented in Australia by Section 14 and 15 of the *Prohibition of Human Cloning Act (Cth) 2002*, even though the research required has nothing to do with cloning. Sydney IVF can elaborate should the Committee decide to explore this difficulty.

The present level of solid government support for IVF is generally appreciated by, particularly, the older women who need it. For this obvious reason the assistance should be maintained. We encourage the Standing Committee to make this recommendation.

In this submission, we will focus in the following areas:

- the age-related decline in fertility
- the Australian experience with assisted conception, particularly IVF services
- knowledge of the effects of delayed childbirth in Australia.

## The Effect of Increasing Age on Fertility

There are several reasons why live births become rare as women move through the age of 40.

### Increased chance of experiencing fertility decreasing conditions

The chance of experiencing some fertility decreasing conditions, such as endometriosis, fibroids or pelvic infection leading to blocked fallopian tubes, increases with age.

### Increased risk of chromosomal abnormalities

It is recognised that the occurrence of abnormal fetuses is much higher among older women. One of the best known is the chromosomal abnormality that results in Down syndrome. Chromosomal abnormalities are major contributors in the increased rate of miscarriage among older women.

Sydney IVF has an active research program in preimplantation genetic diagnosis. By screening embryos in IVF treatment for genetic abnormalities, we hope to further improve the health of women and their babies.

### Decreased energy in embryos

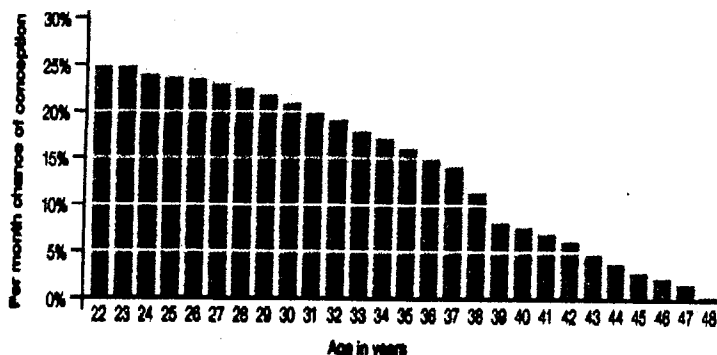
When an egg is fertilised, the embryo receives all of its energy in packets called mitochondria from the mother. As the fertilised egg divides, the mitochondria don't - at least not until after the embryo has implanted and pregnancy is established. Because an embryo's mitochondria (and ultimately the baby's mitochondria) come from the egg, which is as old as the woman, the mitochondria can also get old, with the number of still healthy ones running out before the cells in the fetus start making new ones. If this happens, fertilisation may fail to take place at all, or the embryo will run out of energy, resulting in the failure of the embryo to divide properly, the failure of the embryo to implant or, finally, an early miscarriage.

To help overcome the metabolic and energy deficiencies of older eggs, Sydney IVF has a strong research interest in improving IVF success rates in older women through continuous improvement of culture media, the fluid in which we develop embryos in the laboratory.

### Decline in ovarian reserve

If periods are absent or irregular, as happens when women get older, ovulation (release of eggs from the ovaries) is often absent or irregular too. An absence of ovulation will result in complete infertility. Ovulation can be corrected in some patients with hormones or drugs. If there are no eggs in the ovaries that respond to drug treatment, the only solution for pregnancy is to use donated eggs or embryos.

The combined effect of all of these factors is the decline in the monthly chance of conception as women age, as shown in the graph below.



By age 36 a normal woman's chance of conceiving per month is decreased by half.

The downward slope continues until by age 45 the average natural fertility rate per month is approximately 1%.

## The Australian Experience with Assisted Conception

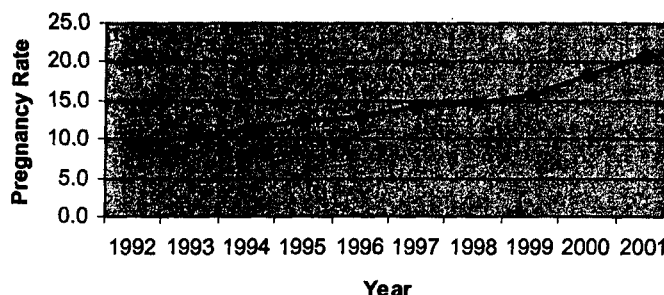
All assisted conception units in Australia and New Zealand must report their statistics to the National Perinatal Statistics Unit (NPSU) each year. The last year for which live birth data is available was 2002.<sup>1</sup>

Some of the highlights of that report are as follows:

- During 2002, 32,958 treatment cycles were attempted in Australia
- There were 7,577 pregnancies reported in the 2002 cohort, resulting in 6,816 live born babies- approximately 3% of all births in Australia.
- In Australia, there were 8.0 treatment cycles per 1,000 women of reproductive age (15-44 years).
- The average age of women undergoing treatment in 2002 was 35.2 years. Their partners were aged on average 37.6 years. This was the first year in which national data were available on the age of consumers of assisted reproduction treatment.
- **The average age of women giving birth was 34.4 years, 5.2 years older than the average age of Australian mothers in 2001 (29.2 years).**
- More than half (54.5%) of cycles involved fresh, non donor oocytes or embryos, a third (31.1%) used frozen, non donor oocytes or embryos and 4.8% used oocytes or embryos received from a donor. The remaining 9.4% of cycles were artificial insemination using donated sperm.
- For fresh, non-donor cycles, 18.3% of all cycles started resulted in the delivery of at least one live baby. For frozen, non donor cycles, 13.7% of all cycles in which embryos were thawed resulted in the delivery of at least one live baby.
- The success of fresh, non-donor treatment varied by women's age. Women aged 25-29 years achieved the greatest success, with 25.9% of initiated cycles achieving a live delivery. Women aged 40-44 years had a success rate of 6.1%.

The report also demonstrates that IVF success rates have more than doubled over the 10 years in which data have been collected:

**Viable Pregnancy Rate 1992-2001**



<sup>1</sup> Assisted reproductive technology in Australia and New Zealand 2002. AIHW National Perinatal Statistics Unit. Sydney, 2004.

## **Attitudes and Beliefs About Delayed Childbirth**

Given the problems of declining fertility rates with increasing age combined with decreasing success of assisted conception treatments as women age, Sydney IVF believes the current inquiry is urgently needed. We must gain information about the Australian experience of women and their family planning decisions in order to better inform women and those who develop the policies that affect them.

### **Australian women's knowledge about the length of their reproductive lives**

Australian women do not seem to be well informed about the inner workings of their biological clocks. In a survey conducted by Family Planning NSW in 2002,<sup>2</sup> 93 women in the 35-55 year age group were asked to answer a questionnaire about their perceptions of their natural fertility. The results show that women were aware that their chance of pregnancy decreased with age and with the irregularity and then cessation of their menstruation, but they grossly overestimated the annual chance of conception and the length of reproductive life. They thought that in the 40-44 year old age group there was a 62% per year chance of pregnancy in a woman with regular menses, a 40% per year chance of pregnancy in a 45 to 49 year old woman with irregular menses and an 18% per year risk after menopause and over the age of 50 that they would conceive.

Unfortunately, the doctors who were surveyed in this study would not have been able to provide them with the facts. General practitioners thought that there was a 34% chance of a woman with irregular menses 45-49 years becoming pregnant and 14% chance of pregnancy in a woman of 45-49 years who had reached menopause. After 50 years they said there was a 25% chance of a woman with irregular menses conceiving.

The results of this study are interesting in that they indicate that the facts of fertility and contraception are at variance with common perception. In the first place, women perceive themselves to be more fertile than they really are as they age and general practitioners may also be less aware than they should be. The investigators felt that this study is too small to make any definite conclusions, but there is at least some evidence that there is a lack of knowledge about true fertility rates.

### **The American experience of work-life balance**

The United States' experience is useful to recognise how little we know about Australian circumstances, and to put our own situation in perspective.

In 2002, Sylvia Ann Hewlett, President of the Center for Work-Life Policy in the United States, conducted a survey of the top 10% of American professional women.<sup>3</sup> Hewlett studied 2 groups of women: the "breakthrough" generation (women aged 40-55) and their younger peers (28-40).

The situation is almost the reverse for women than their male counterparts. The more successful a woman is, the more she earns, the less likely she is to have either a partner or children. For men, the reverse is true. In corporate America, for example, 42% of the professional women in the survey (defined as those women who work in companies with 5,000 or more employees) were childless at age 40 while only 25% of their high-achieving male peers were childless at the same age. Men don't experience a significant gap between what they want and what they have on the children front—79% want children, 75% have them. So there is a continuing deep inequity between men and women in terms of their ability to lead lives that contain both career and family.

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<sup>2</sup> Christine Read, FPA Health, personal communication.

<sup>3</sup> Hewlett SA. Sexuality, Reproduction and Menopause, Vol. 2, No. 1, March 2004.

One might expect that things would be improving with time with many more professional women in the workplace, and at least some companies doing more to help women balance career and family. In fact, Hewlett found that these sacrifices are as severe for younger women as they were for the breakthrough generation. For instance, fully 55% of these younger women are childless at age 35, which is in fact a higher percentage than was true for older women at that age. Across the board, 33% of American professional women are childless at age 40 and yet only 14% of these women had planned lives without children. Many yearn for families and at least some go to extraordinary lengths to bring a baby into their lives.

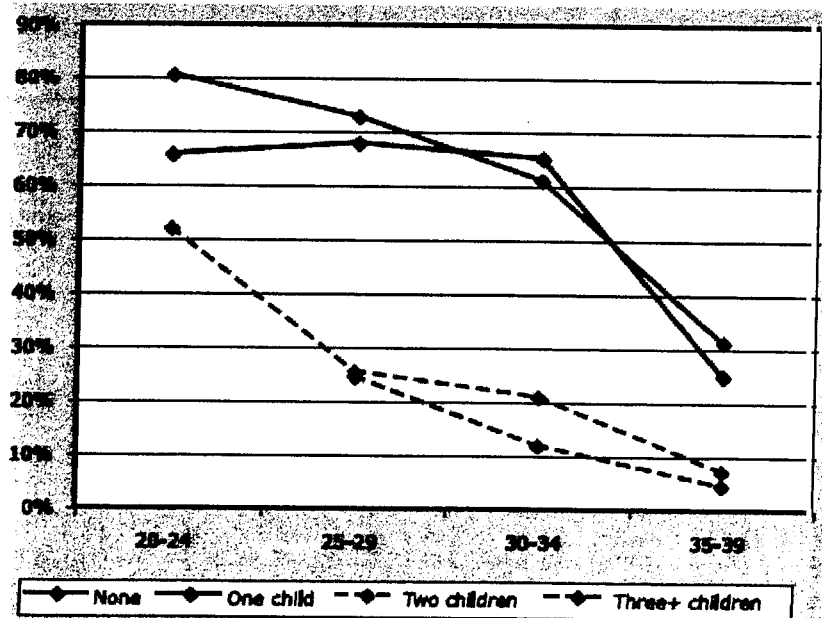
### Australian insights into childbearing expectations

In order to gain insight into reasons behind Australia's declining birth rate, The Australian Institute of Family Studies conducted a national random survey of 3201 Australians aged 20-39 in 2003. The *Fertility Decision Making Project* is the most comprehensive insight yet into people's decisions to have - or not have - children. Funded by the federal Office for Women, the study was designed to understand Australians' hopes, expectations and concerns about having children, as well as to begin to formulate strategies to address them.

The study found that the declining birth rate is "not for lack of wanting kids." In fact, only 5 per cent of respondents who had no children said that they definitely did not want children.<sup>4</sup>

The proportions of women without children who expected a child fell as age increased (from 80% of women in their early twenties to 31% of women in their late thirties). As shown in the graph below, the decline in the proportions expecting a child was particularly marked for women between their early and late thirties (61% vs 31%).

Figure 5.2b. Likelihood of having a child or more children by age and parity: women



<sup>4</sup> Weston R et al. Research Report no. 11 2004. Australian Institute of Family Studies

Pursuit of education may be another reason that women delay childbearing. The survey found that both men and women with or pursuing a degree or higher qualification were more likely than others to delay having children and thus were more likely to have no children. Nevertheless, of those who had no children, the majority of men and women in their twenties who had or were pursuing a degree or higher qualification wanted to have children.

Contrary to some preconceived ideas, women with or pursuing university degrees were as likely as women with less education to *want* children. Among women in their thirties, however, the higher the educational qualifications achieved or being pursued, the more likely they were to *expect* to remain childless (from 5% to 17%) and the less likely they were to expect three or more children (applying to 25% of those with or pursuing a degree or higher qualification and 36% of those with no existing or pursuit of post-school qualifications).

The decline in the fertility rate has also been attributed to pursuit of career. For women in both their twenties and in their thirties, expectations about family size varied significantly with employment status. Women in full-time work were considerably more likely than those with no paid work or those working part-time to expect to remain childless (21% vs 11% to 13% of women in their twenties; 27% vs 7% of women in their thirties). Conversely, those who were not in paid work were the most likely to expect four or more children while those in full-time work were the least likely to do so (13% vs 4% of women in their twenties; 15% vs 5% of women in their thirties).

#### **Australian women and IVF over 35**

With the vast majority of Australians expecting to have children, what reasons do Australian women give for presenting for assisted conception relatively late in their reproductive lives? Lack of awareness that fertility is related to age was given by 18% of respondents to a Monash IVF survey conducted among women over age 35 with no previously planned pregnancies who presented for IVF treatment at their centre.<sup>5</sup>

The most common reason for late presentation, given by half of the women who responded to the survey, was that they wanted children earlier but were not in a relationship. This finding is confirmed in the *Fertility Decision Making Project*, which found that people were very concerned about being good parents and providing the emotional security for children that came from a secure relationship, notably marriage. Not having a partner was the main reason people in their 30s were childless.

Reason	%	n	Mean age	Years in relationship
I wanted children earlier but I was not in a relationship	50	76	39.3	4.9
I/we wanted to be financially secure before having a family	32	49	39.0	8.3
I haven't been interested in having children until recently	26	39	38.7	10.1
I wanted to pursue my career before having a family	19	29	39.1	7.6
I was unaware that my chance of having children is age related	18	28	38.8	8.7
My partner has children from a previous relationship	17	26	39.2	5.9
I wanted children earlier, but my partner wasn't ready	16	24	38.6	9.7
Health problems prevented me from trying earlier	10	15	37.9	8.6
Family commitments prevented me from having children earlier	4	6	40.7	9.3

<sup>5</sup> Hammarberg K, Clarke V. Australian Family Physician Vol 34, No. 3, March 2005.

## **Conclusion**

Because women are born with all of the eggs they'll ever have, and men's fertility is lifelong, they must create different paths in the labor market. One pattern that might work better for women is a more determined effort to find that loving partner in one's late 20s and to have that first child before age 35.

What this means for professional life is complicated. Obviously, it is extremely important to get qualified; to put together the skills that enable one to have a lifelong career. But in those key years, 28 to 35, it's important to construct a professional life that doesn't demand 70 hours a week, but one that allows time and attention for personal goals.

Until science can find a treatment for the inexorable decline in fertility that accompanies age, and bodies such as this Committee can adequately address the societal dilemma of balancing work and family, Australian women will continue to need the support of assisted conception services. Since these treatments involve medications and complex science, continued government support of assisted conception- though Medicare and legislation enabling research- is essential to ensure access by all women in the community when they cannot conceive naturally.

### **Appendix 1**

Jansen RPS. Older ovaries: ageing and reproduction. *Medical Journal of Australia* 1995;162:623-624.

### **Appendix 2**

Jansen RPS. The effect of female age on the likelihood of a live birth from one in-vitro fertilisation treatment. *Medical Journal of Australia* 2003; 178: 258-261.

### **Appendix 3**

Jansen RPS. Benefits and challenges brought by improved results from *in vitro* fertilization. *Internal Medicine Journal* 2005; 35: 108-117.

### **Appendix 4**

Jansen RPS and Burton GJ. Mitochondrial dysfunction in reproduction. *Mitochondrion* 2004; 4: 577-600.